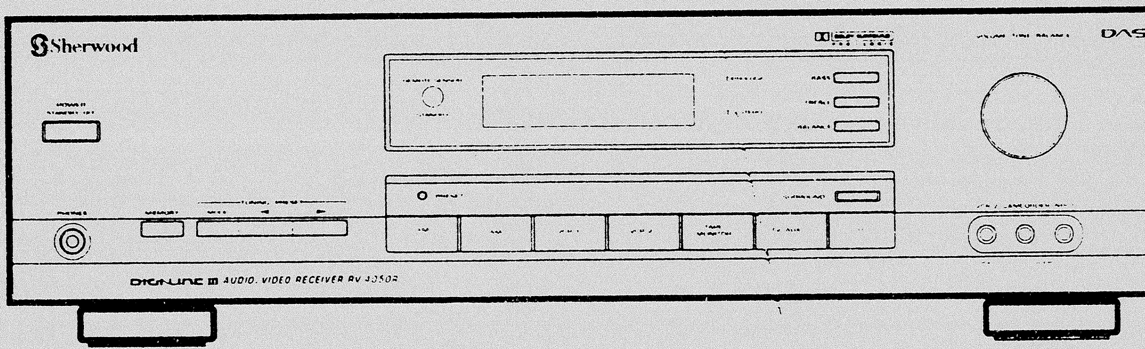
SERV. 31155

SERVICE MANUAL

RV-4050R

AUDIO/VIDEO PRO-LOGIC RECEIVER



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Sherwood

SAFETY PRECAUTIONS

WARNING

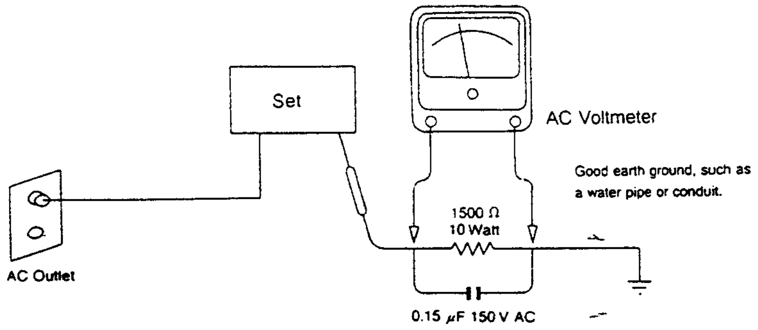
Before servicing this unit, familiarize yourself with the following precautions:

1. Many electrical and mechanical parts in this chassis have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltge, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by ⚠ in the schematic diagram and the parts list.

   Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such as terminals, screw heads, and metal overlays, to be sure the set is safe to operate danger of electrical shock. Plug the AC line cord directly into a 120 V AC outlet (120 V AC version only). (Do not use a line isolation transformer during this check.) Be sure your AC voltmeter has a sensitivity of 5000 Ω per volt or greater. Then connect a 1500 Ω 10 watt resistor, paralleled by a 0.15 μF 150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metalic is parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metalic part. Voltage measured must not exceed 0.75V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

At 5000 Ω per volt or greater sensitivity,
the reading should not exceed 0.75 V.



Place the probe on each exposed metalic part.

SPECIFICATIONS

Audio Section-Front (Mode: Normal)		Unit	Norminal	Limit
RMS output power : at distortion below 0.3 % 50 Hz both channels driven at 8 Ω		W	≧ 52	≧ 50
at distortion below 0.3 % 1 kHz both channels driven at 8 Ω		W	≧ 52	≧ 50
Inter-modulation distortion at 80 W output 60 Hz : 7 kHz =4 : 1 SMPTE		%	0.05	0.08
Harmonic distortion at 45 W output :	40 Hz	%	0.15	0.3
	1 kHz	%	0.1	0.2
	20 kHz	%	0.15	0.3
Frequency response at AUX 8 Ω load, 1 W output	20 Hz - 40 kHz	dB	±3	±3
Input sensitivity for 50 W output :	CD/AUX	mV	200	200±30
Tone control	BASS, 100 Hz	dB	±10	±12
	TREBLE 10 kHz	dB	±10	±12
Channel separation with 4.7 kΩ shorted at AUX input	1 kHz	dB	55	45
	10 kHz	dB	45	40
Signal to noise ratio, input shorted with IHF-A	CD, TV/AUX, TAPE(MONI)	dB	≧90	≧85

Audio Section-Front(Mode : Dolby-logic) (Condition : input VCR, input level 1 kHz 350mV vol. level)				
RMS output power at distortion below 0.9% 1 kHz, 8 Ω		W	≧ 75	≧ 60
Signal to noise ratio, input shorted with IHF "A" (Dolby prologic, 3 Stereo)		dB	≧ 78	≧ 73
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)		Hz	40~20000	50~20000
Audio Section-Center				
RMS output power at distortion below 0.9% 1 kHz, 8 Ω		W	≧ 70	≧ 65
Signal to noise ratio, input shorted with IHF "A" (Dolby prologic, 3 Stereo)		dB	≧ 78	≧ 73
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)	Normal	Hz	100-17000	150-15000
	Wide	Hz	30-17000	50-15000
Audio Section-Rear				
RMS output power at distortion below 0.9 % 1 kHz, 16 Ω		W	≧ 35	≧ 30
Signal to noise ratio input shorted with IHF "A" (Dolby prologic) Delay 20 ms		dB	≧65	≧60
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)		Hz	80-7000	100-6000

FM Section		Unit	Norminal	Limit
Tuning coverage for USA / Canada		MHz	87.5-107.9	
Tuning coverage for Europe		MHz	87.50-108.00	
Usable sensitivity at noise & distortion, S/N 30 dB 75 ohm input		µV	2	3
Image rejection at 106 MHz		dB	40	35
IF rejection at 90 MHz		dB	80	70
Full limiting at -3 dB		µV	1.5	2
50 dB quieting sensitivity at 98 MHz :	MONO	µV	3	5
	STEREO	µV	31.6	50.1
Distortion at 1 mV input :	MONO	%	0.35	0.5
	STEREO	%	0.5	0.7
Signal to noise (S/N) ratio at 1 mV input	MONO	dB	68	65
	STEREO	dB	65	60
De-emphasis at 100-12,000 Hz		dB	±1.5	±2
AM rejection ratio at 100 µV-20 mV input		dB	45	35
Search level at 98 MHz		µV	10	3.5-10
Output voltage at 75 kHz dev. :	MONO	V	0.5	0.5±0.15
1 kHz mod., 1 mV input	STEREO	V	0.6	0.6±0.10
Muting threshold at 98 MHz		µV	10	3.5-10
Overload THD at 98 MHz, 100 % mod. at 100 mV RF input		%	0.4	0.6
Spurious response at 98 MHz antenna input 3 µV, 1/21F, 2x1/21F		dB	70	60
Capture ratio at 1 mV input		dB	2.5	3
Alternate channel selectivity at 0.1 mV input		dB	48	45
MPX Section				
Stereo separation : at 100 % mod., 1 mV input	1 kHz	dB	43	33
	10 kHz	dB	30	25
Distortion : at 100 % mod., 1 mV input through IHF Filter	MONO	%	0.35	0.5
	STEREO	%	0.5	0.7
Automatic stereo threshold		µV	6	3.5-10
AM Section				
Tuning coverage for USA / Canada		kHz	520-1710	
Tuning coverage for Europe		kHz	522-1611	
Usable sensitivity 600 kHz, 1010 kHz, 1400 kHz (603 kHz, 1008 kHz, 1404 kHz for Europe) at 400 Hz, 30 % mod., S/N=-20 dB		µV / m	350	700
Image rejection at 1400 kHz (1404 kHz for Europe)		dB	35	28
IF rejection at 600 kHz (603 kHz for Europe)		dB	35	30
AGC figure of merit from 100 mV/m at 1010 kHz (1008 kHz for Europe)		dB	45	35
Distortion at 400 Hz, 30 % mod., 5 mV/m input		%	0.8	2.0
IF bandwidth at 6 dB down, 350 µV/m input		kHz	8	5-12
Output voltage at 400 Hz, 30 % mod., 5 mV/m input		mV	200	200±50
Audio response at 5 mV/m input 1 kHz 0 dB, 1010 kHz (1008 kHz for Europe), -6 dB		Hz	50-2000	70-1.8000
Selectivity at 10 kHz 350 µV/m input		dB	25	20
Signal to noise(S/N) ratio at 1010 kHz (1008 kHz for Europe) with antenna input 5 mV/m		dB	40	35
RF overload 400 Hz 80 % mod., 100 mV input		%	5	10
Search level		µV/m	800	800±6dB

General

Speaker load impedance ········· 8 Ω
Power consumption :
  No load, No signal ········· 30 Watts
  1/8 Pmax. ········· 140 Watts
  Pmax. (Undistorted output) ········· 350 Watts
  Pmax. (THD 10%) ········· 380 Watts
  Pmax. (Undistorted) with outlet ········· 450 Watts
Dimensions (W × H × D) ········· 440 × 110 × 280 mm
(17-5/16 × 4-11/16 × 11 inch)
Weight (Net) ········· 7.5 kg
(16.5 lbs)

Power Requirment

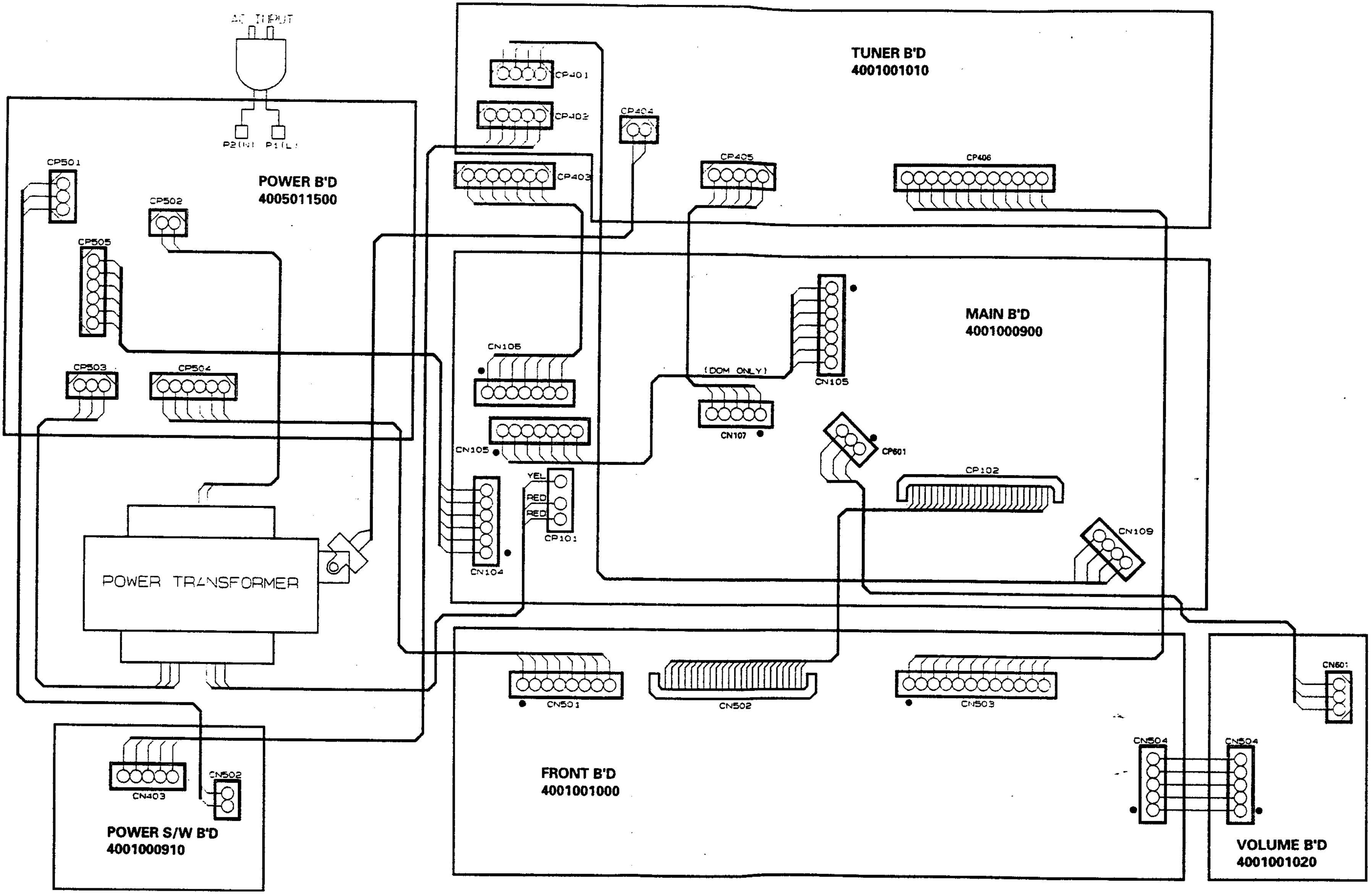
A: 120 V, 60 Hz for American/Canadian Version
B: 120/220 V, 60/50 Hz for mult-voltage version (switchable)
D: 230 V, 50 Hz German/Gerneral European version
E: 240 V, 50 Hz for UK/Austalian version
G: 220 V, 50 Hz for Other Area

Notes :

1. Norminal specs represent the design specs. All unit should be able to approximate these some will exceed and some may drop slight below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specs.
2. This manual is based on the General European(D) standard, and provieds information on regional circuit modification through the use of alternate schematic diagrams or wiring diagram, and information on regional component variations through the use of parts lists. Design and specifications subject to change without notice.

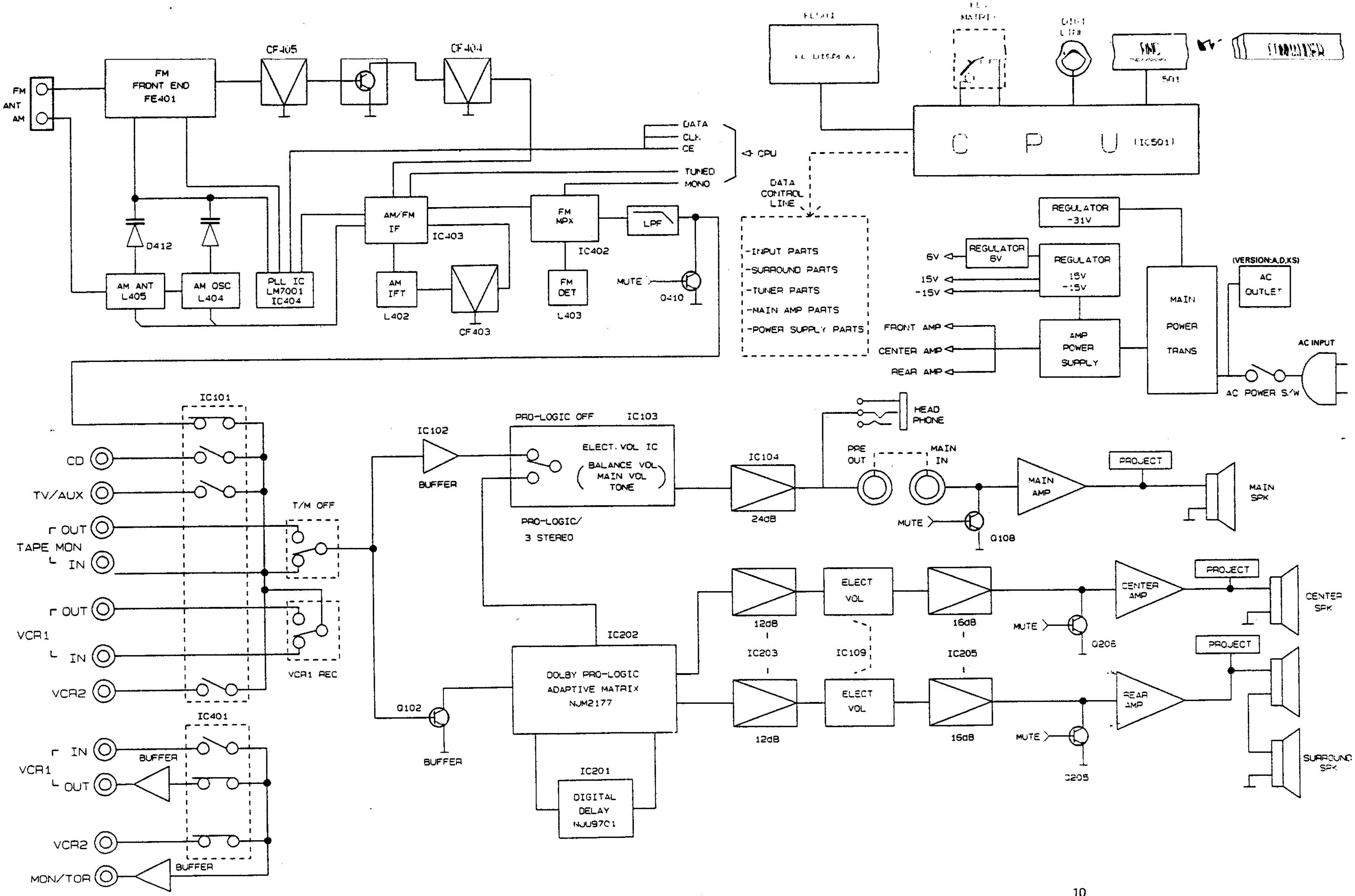
WIRING DIAGRAM

Model No. : RV-4050R


AC INPUT
P2(N)
P1(L)
CP501
CP502
POWER B'D
4005011500
CP505
CP503
CP504
POWER TRANSFORMER
CP401
CP402
CP403
CP404
TUNER B'D
4001001010
CP405
CP406
MAIN B'D
4001000900
CN106
(DOM ONLY)
CN105
CN107
CN105
CP601
YEL
RED
RED
CP101
CN104
CP102
CN109
CN501
CN502
CN503
CN601
CN504
CN504
FRONT B'D
4001001000
VOLUME B'D
4001001020
CN403
CN502
POWER S/W B'D
4001000910

BLOCK DIAGRAM

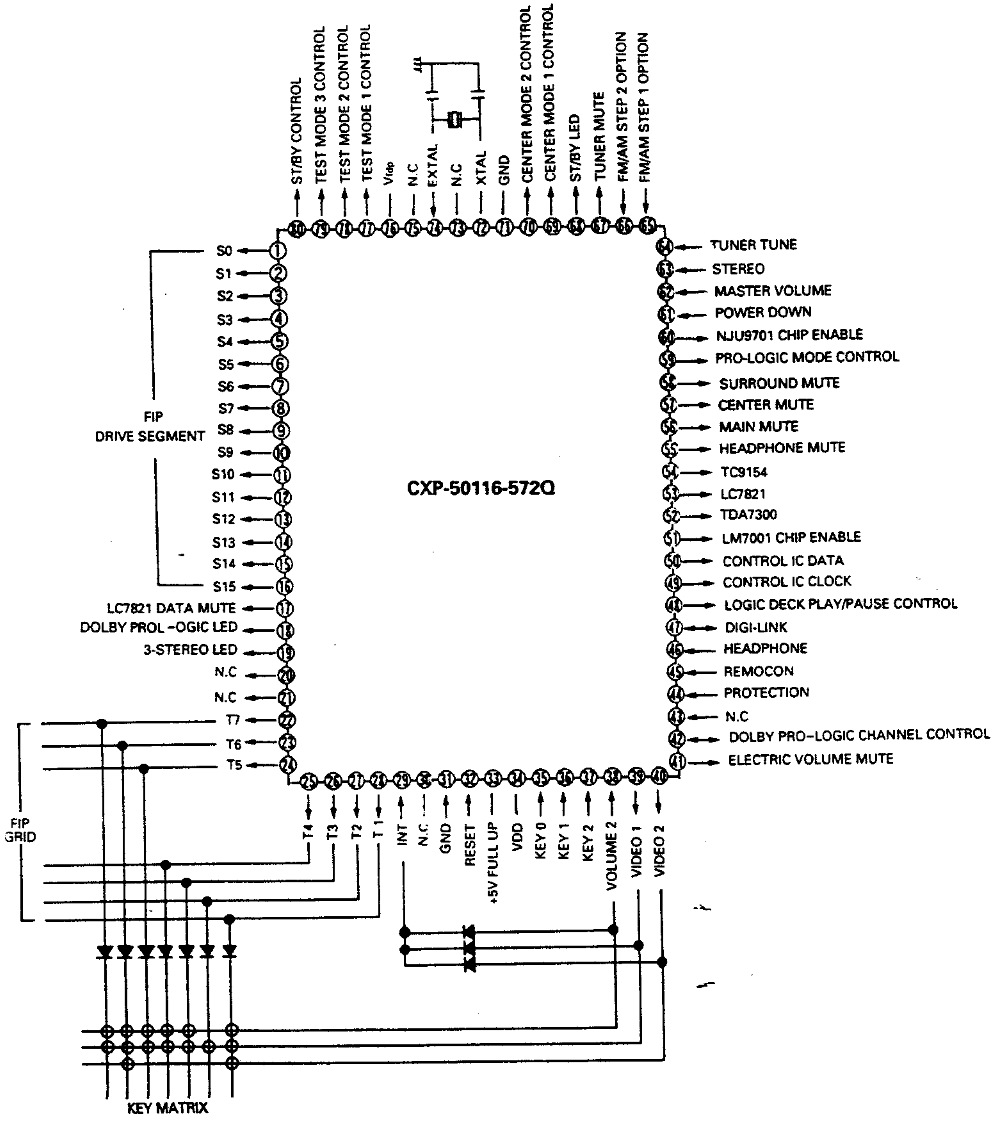
Model No. : RV-405


FM
ANT
AM
FM FRONT END FE401
CF405
CF404
DATA
CLK
CE
TUNED
MONO
CPU
D412
AM ANT L405
AM OSC L404
PLL IC LM7001 IC404
AM/FM IF
IC403
AM IFT
L402
CF403
FM MPX
IC402
FM DET
L403
LPF
MUTE
Q410
FL DISPLAY
501
C P U (IC501)
DATA CONTROL LINE
-INPUT PARTS
-SURROUND PARTS
-TUNER PARTS
-MAIN AMP PARTS
-POWER SUPPLY PARTS
REGULATOR -31V
REGULATOR 6V
6V
REGULATOR 15V -15V
15V
-15V
FRONT AMP
CENTER AMP
REAR AMP
AMP POWER SUPPLY
MAIN POWER TRANS
(VERSION:A,D,KS)
AC OUTLET
AC INPUT
AC POWER S/W
IC101
CD
TV/AUX
OUT
TAPE MON
IN
OUT
VCR1
IN
VCR2
T/M OFF
VCR1 REC
IC102
BUFFER
PRO-LOGIC OFF
IC103
ELECT. VOL IC
BALANCE VOL
MAIN VOL
TONE
PRO-LOGIC/
3 STEREO
IC104
24dB
HEAD PHONE
PRE OUT
MAIN IN
MUTE
Q108
MAIN AMP
PROJECT
MAIN SPK
IC202
DOLBY PRO-LOGIC ADAPTIVE MATRIX NJM2177
IC201
DIGITAL DELAY NJU97C1
Q102
BUFFER
ELECT VOL
12dB
16dB
IC203
IC109
IC205
MUTE
Q206
CENTER AMP
PROJECT
CENTER SPK
ELECT VOL
12dB
16dB
MUTE
Q205
REAR AMP
PROJECT
SURROUND SPK
IC401
IN
VCR1
OUT
BUFFER
VCR2
MON/TOR
BUFFER

CIRCUIT DESCRIPTION

IC501: CXP50116-572Q (4-bit CMOS Microprocessor)

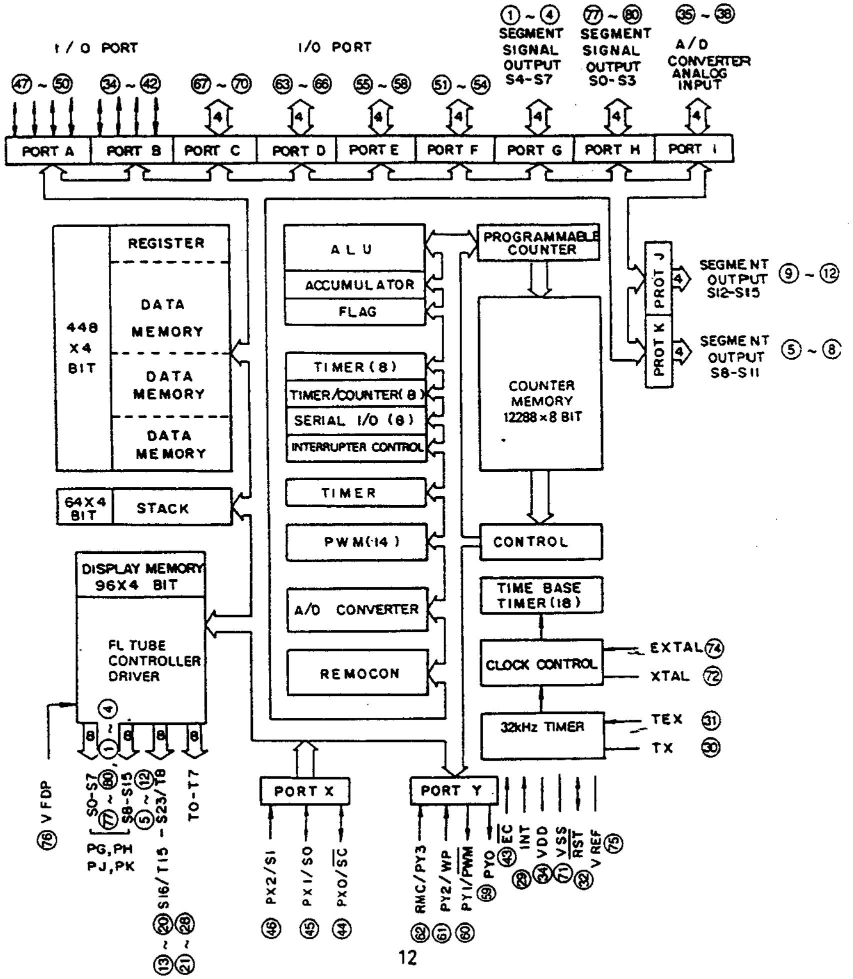
1. Pin Configuration


ST/BY CONTROL
TEST MODE 3 CONTROL
TEST MODE 2 CONTROL
TEST MODE 1 CONTROL
Vᴅᴅ
N.C
EXTAL
N.C
XTAL
GND
CENTER MODE 2 CONTROL
CENTER MODE 1 CONTROL
ST/BY LED
TUNER MUTE
FM/AM STEP 2 OPTION
FM/AM STEP 1 OPTION
TUNER TUNE
STEREO
MASTER VOLUME
POWER DOWN
NJU9701 CHIP ENABLE
PRO-LOGIC MODE CONTROL
SURROUND MUTE
CENTER MUTE
MAIN MUTE
HEADPHONE MUTE
TC9154
LC7821
TDA7300
LM7001 CHIP ENABLE
CONTROL IC DATA
CONTROL IC CLOCK
LOGIC DECK PLAY/PAUSE CONTROL
DIGI-LINK
HEADPHONE
REMOCON
PROTECTION
N.C
DOLBY PRO-LOGIC CHANNEL CONTROL
ELECTRIC VOLUME MUTE
S0
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
FIP
DRIVE SEGMENT
LC7821 DATA MUTE
DOLBY PROL-OGIC LED
3-STEREO LED
N.C
N.C
T7
T6
T5
FIP
GRID
CXP-50116-572Q
T4
T3
T2
T1
INT
N.C
GND
RESET
+5V FULL UP
VDD
KEY 0
KEY 1
KEY 2
VOLUME 2
VIDEO 1
VIDEO 2
KEY MATRIX

2. Key Matrix

OUT IN	KSCAN 0 PIN 28	KSCAN 1 PIN 27	KSCAN 2 PIN 26	KSCAN 3 PIN 25	KSCAN 4 PIN 24	KSCAN 5 PIN 23	KSCAN 8 PIN 22
KEY IN 0 PIN 35	FM	-	VCR 2	AM	DOWN	TUNING MODE	MEMORY
KEY IN 1 PIN 36	TREBLE	BASS	SURROUND MODE	CD	TV/AUX	VCR 2	TAPE MONITOR
KEY IN 2 PIN 37	BALANCE	-	-	-	-	-	UP

3. Block Diagram

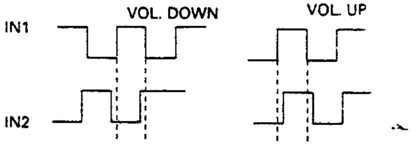

①~④
SEGMENT SIGNAL OUTPUT S4-S7
⑦⑦~⑧⓪
SEGMENT SIGNAL OUTPUT S0-S3
㉟~㊳
A/D CONVERTER ANALOG INPUT
I/O PORT
I/O PORT
㊼~㊿
㉞~㊷
(67)~(70)
(63)~(66)
(55)~(58)
(51)~(54)
4
PORT A
PORT B
PORT C
PORT D
PORT E
PORT F
PORT G
PORT H
PORT I
REGISTER
DATA MEMORY
448 X4 BIT
DATA MEMORY
DATA MEMORY
64X4 BIT
STACK
DISPLAY MEMORY 96X4 BIT
FL TUBE CONTROLLER DRIVER
ALU
ACCUMULATOR
FLAG
TIMER (8)
TIMER/COUNTER (8)
SERIAL I/O (8)
INTERRUPTER CONTROL
TIMER
PWM (14)
A/D CONVERTER
REMOCON
PROGRAMMABLE COUNTER
COUNTER MEMORY 12288×8 BIT
CONTROL
TIME BASE TIMER (18)
CLOCK CONTROL
32kHz TIMER
PROT J
PROT K
SEGMENT OUTPUT S12-S15 ⑨~⑫
SEGMENT OUTPUT S8-S11 ⑤~⑧
EXTAL (74)
XTAL (72)
TEX ㉛
TX ㉚
8
(76) VFDP
④~①, (80)~(77) S0-S7
⑫~⑤ S8-S15
PG, PH
PJ, PK
S16/T15 ~ S23/T8
⑳~⑬
T0-T7
㉘~㉑
PORT X
PX2/SI ㊻
PX1/SO ㊺
PX0/SC ㊹
PORT Y
RMC/PY3 (62)
PY2/WP (61)
PY1/PWM (60)
PY0 (59)
EC ㊸
INT ㉙
VDD ㉞
VSS (71)
RST ㉜
V REF (75)

4. Pin Functions

<table>
<tr><th>Pin. No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>1~16</td><td>S16~S1</td><td>Segment signal output for FIP.</td></tr>
<tr><td>17</td><td>DATA MUTE</td><td>Mute signal output to LC7821</td></tr>
<tr><td>18</td><td>DOLBY</td><td>Output for driving DOLBY LED.</td></tr>
<tr><td>19</td><td>3-ST</td><td>Output for driving 3-STEREO LED.</td></tr>
<tr><td>20~21</td><td>NC</td><td>Not used! (NC pins are always connected to Vdd).</td></tr>
<tr><td>22~28</td><td>T7~T0</td><td>Grid signal output for FIP.</td></tr>
<tr><td>29</td><td>INT</td><td>Data input of K₀~K₈ for key scan.</td></tr>
<tr><td>30~31</td><td>NC</td><td>Not used !</td></tr>
<tr><td>35~37</td><td>KEY INPUT</td><td>Data input of K₀~K₈ for key scan.</td></tr>
<tr><td>38</td><td>EVC. MU.</td><td>Mute signal output to prevent click noise when operating electronic VOL.</td></tr>
<tr><td>39/40</td><td>VID1/VID2</td><td>Control data output for selecting VCR1 or VCR2 video signal.

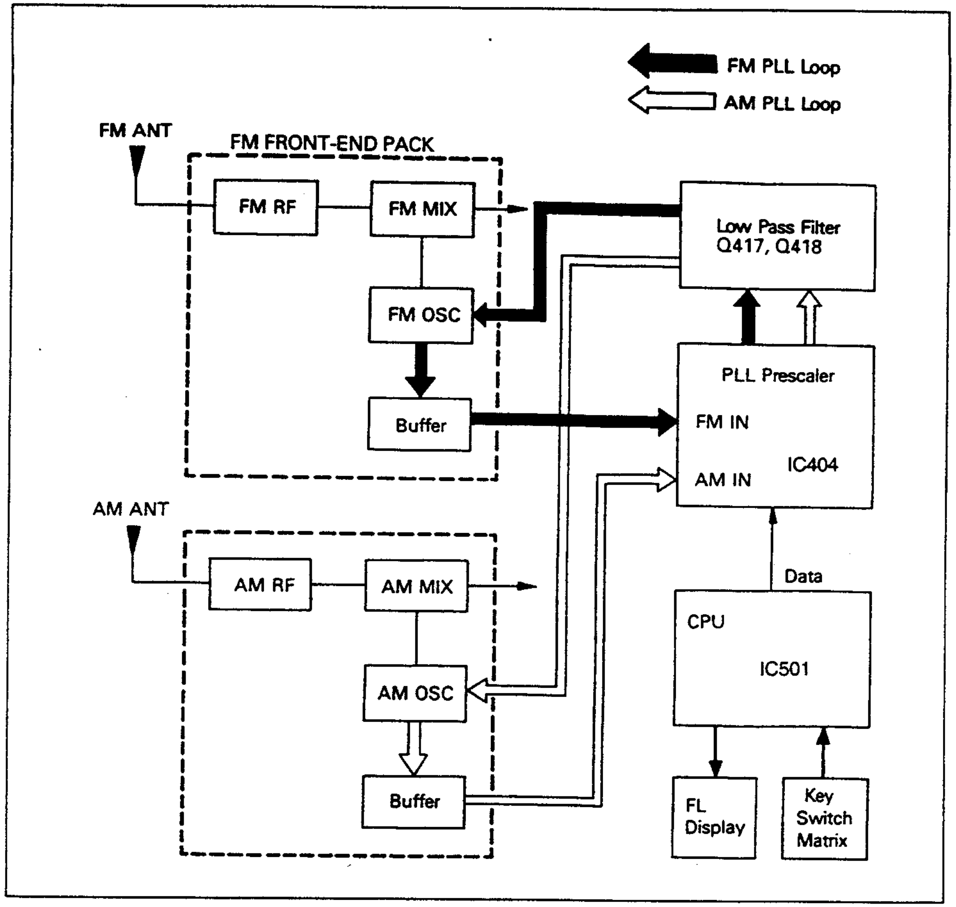
According to each mode, data output is as follows.
<table>
<tr><th>MODE</th><th>VID 1</th><th>VID 2</th><th>REMARKS</th></tr>
<tr><td>VCR 1</td><td>H</td><td>L</td><td>Emitial settings</td></tr>
<tr><td>VCR 2</td><td>L</td><td>H</td><td></td></tr>
<tr><td>OTHERS</td><td>△</td><td>△</td><td>△: Previous state</td></tr>
</table>
⁎ Last memory function is available.</td></tr>
<tr><td>41</td><td>M. VOL. IN1</td><td>Input for main volume.</td></tr>
<tr><td>42</td><td>CH. MODE</td><td>Port for settings of PRO-LOGIC and 3-STEREO mode.

According to each mode, data output is as follows.
<table>
<tr><th>MODE</th><th>OUTPUT</th></tr>
<tr><td>3-STEREO</td><td>High impedance</td></tr>
<tr><td>PRO-LOGIC</td><td>H</td></tr>
<tr><td>OTHERS</td><td>L</td></tr>
</table></td></tr>
<tr><td>43</td><td>NC</td><td>Not used !</td></tr>
<tr><td>44</td><td>PROT.</td><td>Signal input for protection.
When "L" is input, it is changed to STAND BY.
(But for first 3 second, PROTECTION Is not checked.)</td></tr>
<tr><td>45</td><td>RMC</td><td>Input for remocon data. (At "L", it is active.)</td></tr>
<tr><td>46</td><td>H/P IN</td><td>When inserting headphone, "H" is input.</td></tr>
<tr><td>47</td><td>D. LINK</td><td>Input/output for controlling DIGI-LINK.</td></tr>
<tr><td>49~50</td><td>CLK/DATA</td><td>CLOCK/DATA output for TDA7300, TC9154, LC7821, NJU9701 and LM7001.</td></tr>
<tr><td>51</td><td>CE1</td><td>Chip enable output for LM7001.</td></tr>
<tr><td>52</td><td>CE2</td><td>Chip enable output for TDA7300.</td></tr>
<tr><td>53</td><td>CE3</td><td>Chip enable output for TC9154.</td></tr>
<tr><td>54</td><td>CE4</td><td>Chip enable output for LC7821.</td></tr>
<tr><td>55</td><td>H/P MUTE</td><td>Output for headphone mute. "H" is outputed under the following conditions.
1. When the power is on or off.
2. When selecting the input function.
3. When "H" is input to H/P input.
4. When "L" is input to "PROT" of CPU.
5. "-∞ " mute signal is transferred from the commander.</td></tr>
</table>

<table>
<tr><th>Pin. No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>56</td><td>MAIN MUTE</td><td>Output for main mute. "H" is outputed under the following conditions.
1. When the power is on or off.
2. When "H" is inputted to H/P input.
3. When "L" is inputed to "PROT" of CPU.
4. "-∞ " mute signal is transferred from the commander.</td></tr>
<tr><td>57</td><td>SURR. MUTE</td><td>Output for SURR. mute. "H" is outputed under the following conditions.
1. When the power is on or off.
2. When selecting surround mode.
3. When the test tone mode is on or off or When the channel is change in the test tone mode.
4. When "H" is inputed to H/P input.
5. When "L" is inputed to "PROT" of CPU.
6. "-∞ " mute signal is transferred from the commander.</td></tr>
<tr><td>58</td><td>CENTER MUTE</td><td>Output for center mute. "H" is outputed under the following conditions.
1. When the power is on or off.
2. When the center mode is on or off.
3. When selecting center mode.
4. When the test tone mode is on or off or When the channel is change in the test tone mode.
5. When "L" is inputed to "PROT" of CPU.
6. "-∞ " mute signal is transferred from the commander.</td></tr>
<tr><td>59</td><td>PRO</td><td>Output for controlling in the surround mode.
<table>
<tr><th>SURROUND MODE</th><th>PRO 1</th></tr>
<tr><td>PRO-LOGIC, 3-STEREO</td><td>H</td></tr>
<tr><td>SURR. OFF</td><td>L</td></tr>
</table></td></tr>
<tr><td>60</td><td>CE5</td><td>Chip enable output for NJU9701.</td></tr>
<tr><td>61</td><td>PD</td><td>Input for power down. (At "L", it is active.)</td></tr>
<tr><td>62</td><td>M. VOL. IN2</td><td>Input for main volume up/down.
 </td></tr>
<tr><td>63</td><td>STEREO</td><td>Input for lighting the "STEREO" Indicator. (At "L", it is active.)</td></tr>
<tr><td>64</td><td>TUNED</td><td>Input for detecting station during tuning.
If "L" is inputed during tuning, tuning stops at that frequency.</td></tr>
</table>

<table>
<tr><th>Pin. No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>65/66</td><td>A.STEP/F.STEP</td><td>According to region, input for selecting the frequency bands and steps of FM and AM.
Setting are as follows.
<table>
<tr><th>REGION</th><th>FREQUENCY</th><th>STEPS</th><th>F. STEP</th><th>A. STEP</th></tr>
<tr><td>AMERICA</td><td>FM: 87.5~107.9 MHZ
AM: 520~1710 kHz</td><td>200 KHz
10 kHz</td><td>H</td><td>H</td></tr>
<tr><td>EUROPE</td><td>FM: 87.5~108 MHz
AM: 522~1611 kHz</td><td>50 kHz
9 kHz</td><td>L</td><td>L</td></tr>
<tr><td>KOREA</td><td>FM: 87.5~107.5 MHz
AM: 522~1611 kHz</td><td>200 kHz
9 kHz</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>67</td><td>T.MUTE</td><td>Output for tuner mute.</td></tr>
<tr><td>68</td><td>ST/BY</td><td>Output for driving STAND BY LED. (At "H", it is active).</td></tr>
<tr><td>69/70</td><td>CM1/CM2</td><td>Control data output for center mode in the DOLBY PRO-LOGIC and 3-STEREO mode.
Setting are as follows.
<table>
<tr><th>CENTER MODE</th><th>CM1</th><th>CM2</th></tr>
<tr><td>NORMAL, OFF</td><td>L</td><td>H</td></tr>
<tr><td>WIDE</td><td>H</td><td>L</td></tr>
<tr><td>PHANTOM</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>71</td><td>V_{ss}</td><td>This pin prevides the ground potential.</td></tr>
<tr><td>72</td><td>XTAL</td><td>Output pin serve for connecting a clock oscillator crystal.</td></tr>
<tr><td>73</td><td>NC</td><td>Not used !</td></tr>
<tr><td>74</td><td>EXTAL</td><td>Input pin serve for connecting a clock oscillator crystal.</td></tr>
<tr><td>75</td><td>NC</td><td>Not used !</td></tr>
<tr><td>76</td><td>V_{dd}</td><td>This is the power supply pin of the FL controller.</td></tr>
<tr><td>77~79</td><td>NS3~NS1</td><td>Control data output for selecting channel in the test tone mode.
Setting are as follows.
<table>
<tr><th>SELECTION</th><th>NS1</th><th>NS2</th><th>NS3</th></tr>
<tr><td>TEST TONE OFF</td><td>H</td><td>△</td><td>△</td></tr>
<tr><td>LEFT</td><td>L</td><td>L</td><td>L</td></tr>
<tr><td>CENTER</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>RIGHT</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>SURROUND</td><td>L</td><td>H</td><td>H</td></tr>
</table>
△ : previous state</td></tr>
<tr><td>80</td><td>STAND BY</td><td>When the power is on, control data output is "H".
When the power is off, control data output is "L".
(and last memory function is activated.)</td></tr>
</table>

5. Digital Tuning System Description


FM PLL Loop
AM PLL Loop
FM ANT
FM FRONT-END PACK
FM RF
FM MIX
FM OSC
Buffer
Low Pass Filter
Q417, Q418
PLL Prescaler
FM IN
AM IN
IC404
AM ANT
AM RF
AM MIX
AM OSC
Buffer
Data
CPU
IC501
FL Display
Key Switch Matrix

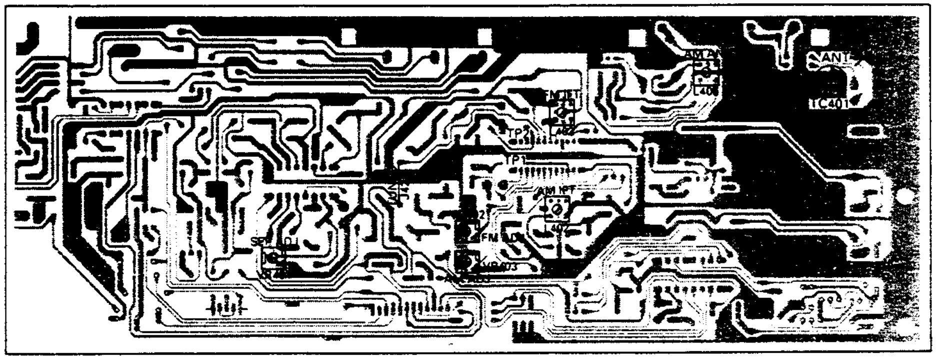
ALIGNMENT PROCEDURES

1. Equipment Required

- AM signal generator
- Oscilloscope
- AC voltmeter
- FM signal generator
- Stereo modulator
- *Audio generator*
- Distortion meter
- DC voltmeter
- Frequency counter

Note: Remove line cord antenna from FM external antenna terminal when aligning.

2. Alignment and Test Points (Tuner P.C. Board)


ANT
TC401
FM DET
TP2
TP1
AM IFT
VR403

3. AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation : 30%
3. Switch : Press to AM.

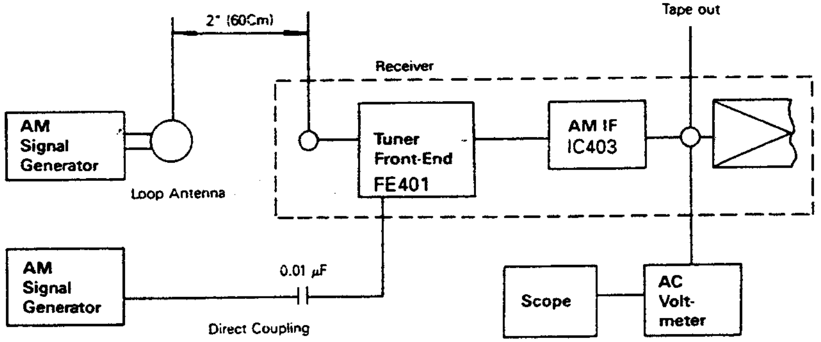
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	L402 (IFT)	Maximum reading
2	600 kHz (400 Hz, Mod.)	600 kHz	Same as Step 1.	L405 (ANT Coil)	Same as Step 1
3	1400 kHz (400 Hz, Mod.)	1400 kHz	Same as Step 1.	TC401 (ANT Trimmer)	Same as Step 1
4	1000 kHz (400 Hz, Mod.)	1000 kHz		VR403 (AM ADJ)	Indication on receiver with output of 500 µV/m

4. FM IF Alignment

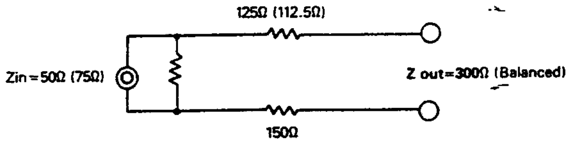
Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch : Press to FM.
3. Signal generator deviation : 75 kHz.
4. Be sure to disconnect FM line cord antenna during alignment.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Distortion meter to TAPE OUT jack	L403 (FM IFT)	Minimum distortion
2	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Same as Step 1	VR402 (FM ADJ)	Zero reading on AC voltmeter with SSG output level of 6 µV


2" (60Cm)
Tape out
Receiver
AM Signal Generator
Loop Antenna
Tuner Front-End FE401
AM IF IC403
AM Signal Generator
0.01 µF
Direct Coupling
Scope
AC Volt-meter

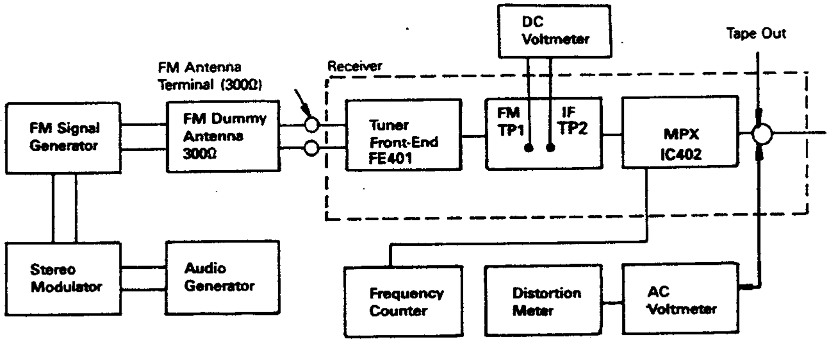
AM Alignment Connection


125Ω (112.5Ω)
Zin=50Ω (75Ω)
Z out=300Ω (Balanced)
150Ω

FM Dummy Antenna to 300Ω Antenna terminal of receiver

FM Dummy Antenna

5. MPX Alignment


DC Voltmeter
Tape Out
FM Antenna Terminal (300Ω)
Receiver
FM Signal Generator
FM Dummy Antenna 300Ω
Tuner Front-End FE401
FM TP1
IF TP2
MPX IC402
Stereo Modulator
Audio Generator
Frequency Counter
Distortion Meter
AC Voltmeter

FM RF/IF and MPX Alignment Connection

Preparation

1. Switch : Press to FM.
2. Tune for 98 MHz on band.
3. Signal Generator output level: 1000 µV.
4. Deviation : 75 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (300 Ω).

Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Output Indicator Connection	Adjust Point	Adjust for
3	8% Mod.	Composite to channel 1 kHz "L" CH.	AC voltmeter to TAPE OUT jack of R channel	VR401 (SEP ADJ)	AC voltmeter reading should be at least 33 dB below.
4	8% Mod.	Composite to channel 1 kHz "R" CH.	AC voltmeter to TAPE OUT jack of L channel	VR401 (SEP ADJ)	Same as Step 3.
If you could not obtain -35 dB readings in Steps 3 and 4 (compared with Step 2), readjust VR401 until you obtain -33 dB readings for both Steps 3 and 4. Nominal is -43 dB.					

TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative (FL indicator does not light)	A) Faulty AC power cord. Replace. B) Defect in the power switch. Replace. C) Broken wire in the power transformer. Replace. D) Blown power Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short in the primary or secondary of the transformer circuitry. Repair the short. C) Damaged rectifier D309~D312. Replace the defective component(s). D) Short circuit in the rectifier circuit. Repair the short.
FL indicator lights but no sound from both channels	A) Defect in transistor Q115 L/R, Q119 L/R on the Main Amp Board. Replace the defective component(s).
One channel does not work when volume is at maximum with a test signal applied to the center terminal of volume control VR5 of the dead channel.	A) Defect in transistor Q118 L/R, Q119 L/R on the Main Amp Board. Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the short. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inopertive.	A) Headphone plug does not mate with jack. Replace the plug. B) Defective resistors R511 L/R Replace.
FM inoperative	A) Defective front-end. (FE 401) Replace. B) Defective FM switch. Replace. C) Defective transistors Q416, Q410, Q412, IC402, IC403. Replace the defective transistor(s) or IC(s). D) Defective coil L403. Replace. E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filters CF404, CF405, defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR401. B) IC402 defective. Replace. C) Variable resistor VR401 defective. Replace.

Symptom	Cause and Remedy
STEREO indicator does not light	A) Defective indictor in FL. Replace. B) Improper adjustment of VR402 of tuner board. Readjust VR402. C) Defective IC402. Replace.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough: Front-end Section defective. Faulty IC403, Coil L403, Defective C838 of tuner Board. B) If sound of one channel is not loud enough: Defective VR401.
FM Mono has no effect	A) Defective FM MODE switch. Replace.
AM inoperative	A) Damaged IC403 of tuner board. Replace. B) Defective L405, L404, L402 or CF403 of tuner board. Replace the defective component(s). C) Resistor R478 defective. Replace. D) Capacitors C439, C429 defective. Replace the defective capacitor(s). E) Defective AM switch. Replace. F) Defective varicap diode D412. Replace . G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
BASS control has no effect	A) Variable resistor BASS defective. Replace. B) Defective IC103 Replace the defective component(s).
TREBLE control has no effect	A) Defective IC103. Replace the defective component(s).
Auto tune inoperative(UP/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC501. Replace. C) Defective tuner circuit component. Replace. D) In case of FM only, improper adjustment of FM front-end. Replace.

Symptom	Cause and Remedy
Manual tune inoperative(UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC501. Replace.
FL inoperative	A) FL defective. Replace. B) Defective IC501. Replace. C) Defective X-TAL501 Replace.
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC501(CPU Board) orZ1. Replace.

NOTES

MECHANICAL PARTS LIST

Ref.No.	Description	Part No.	Q'ty	Version
PACKAGE				
	Box Carton	049605254702	1	
	Cushion Poly	9722036710	1	
	Film Soft PE	9715000120	1	
	Poly Bag	9705001550	1	
ACCESSORIES				
	Antenna Wire (FM)	4348000810	1	A,B,KS
	Antenna Wire (FM)	4348001110	1	D,E,IU
	Battery 1.5 V AA(R6M)	5518001610	2	A,KS
	Manual Instruction	9007018030	1	A
	Manual Instruction	9007018031	1	D,IU
	Manual Instruction	9007018032	1	B
	Manual Instruction	9004018033	1	E
	Manual Instruction	9007018034	1	KS
	Antenna AM Loop Stand Strip Wire	2608207361	1	A,B,KS
	Antenna AM Loop Stand Strip Wire	2608207360	1	D,E,IU
	Ass'y Commander	5418001011	1	
	Ass'y Commander	5418001011	1	KS(Only)
CABINET & CHASSIS				
1	Cover Front, ABS, Black	048583005511	1	
(1)	Cover Front, ABS, Black	048583005512	1	KS(Only)
2	Window Display, Acryl, Wine	048553020411	1	
(2)	Window Display, Acryl, Wine	048553020412	1	KS(Only)
3	Button Tact 1key, ABS, Black	8543061810	1	
4	Knob Main, ABS, Black	8543061910	1	
5	Badge(Sherwood), ABS, Hot-stamp	048535042011	1	
(5)	Badge(Inkel), ABS, Hot-stamp	048535038511	1	KS(Only)
6	Panel Front, ABS, Black	048501034211	1	
(6)	Panel Front, ABS, Black	048501034212	1	KS(Only)
7	Button Power, ABS, Black	8545126010	1	
8	Switch Power	4628055910	1	
9	Jack Phone, Black	4438004520	1	
10	Washer, SECC 0.8t	8305001620	1	
11	Button Tact 4key, ABS, Black	8543061610	1	
12	Indicator, Acryl	8535049710	3	
13	Button Function 7 key, ABS, Black	048543061511	1	
(13)	Button Function 7 key, ABS, Black	048543061512	1	KS(Only)
14	Button Tact 3key, ABS, Black	8543061710	1	
15	Switch Encoder with Nut	3208062810	1	
16	Jack RCA 3P, Gold	4438109810	1	
17	Switch Tact	4658003710	16	
18	Sponge	6715020730	1	
19	FIP	2328132301	1	
20	Cover Top, SECC 0.8t	046122027541	1	
21	Heatsink Power	7502008410	1	
22	Foot, Hot-Stamping, ABS	046035101521	2	
(22)	Foot, Aluminum., Gold	046033102611	2	KS(Only)
23	Foot, ABS, Black	6035101520	2	
(23)	Foot, ABS, Black	6033102510	2	KS(Only)
24	Cover Bottom, SECC 0.8t	6122419120	1	
25	Bracket PCB	6505130010	2	
26	⚠ Power Transformer, 120 V 60 Hz	2828001367	1	A
(26)	⚠ Power Transformer, 230 V, 50 Hz	2828100167	1	D,IU
(26)	⚠ Power Transformer, 240 V, 50 Hz	2828100167	1	E
(26)	⚠ Power Transformer, 220 V, 60 Hz	2828100177	1	KS
(26)	⚠ Power Transformer, 110/220 V, 50/60 Hz	2828100157	1	B
27	Cover Insulation. PVC 0.5t	4833005910	1	E(Only)
28	Frame Left, SECC 1.0t	6122622210	1	
29	Terminal Speaker, 6P	4408107410	1	
30	Jack RCA, 4P	4438103110	1	
31	Jack RCA, 6P	4438103210	2	
32	Frame Right, SECC 0.8t	6123625310	1	
33	Heatsink Regulator TR.	7505206210	1	
34	Switch Selector, 6P	4618006510	1	PT INDO(Only)
35	⚠ Outlet	4448104110	1	A
36	⚠ Outlet	4448105510	1	KS
(36)	⚠ Outlet	4448103610	1	D
37	Locking Tie, ABS, White	6528002810	1	
38	Terminal Speaker, 4P	4408105410	1	
39	Jack RCA, 2P	4438112010	1	
40	Jack RCA, 3P	4438114310	1	
41	Antenna Terminal, 4P	4408107910	1	A,KS,B
(41)	Antenna Terminal, 4P	4408108210	1	D,E,IU
42	Chassis Back	046102041911	1	KS
(42)	Chassis Back	046102041921	1	A
(42)	Chassis Back	046102041931	1	B
(42)	Chassis Back	046102041951	1	D
(42)	Chassis Back	046102041961	1	E
(42)	Chassis Back	046102041991	1	PT INDO
43	Stopper Cord	6518002320	1	D, E
(43)	Stopper Cord	6518002310	1	A,KS
44	⚠ Cord AC Power	4308001410	1	A
45	⚠ Cord AC Power	4308007310	1	KS
(45)	⚠ Cord AC Power	4308000430	1	D,UK
(45)	⚠ Cord AC Power	4308007610	1	E
46	Adapter	4428300410	1	PT INDO(Only)
47	Plug Jumper	4328204210	2	KS(Only)
S1	Screw #2BTC 3x8B	8109230083	45	
S2	Screw #2WPTC 3x8Y	8159230081	13	
S3	Screw BSAM 4x8B	8109440083	4	
S4	Screw #2BTC 3x6B	8109230061	7	
S5	HEX MSPW 3x12Y	8099130121	6	
S6	Screw #1PT 3x10B	8119130103	16	
S7	Screw Ground	8155000710	1	
S8	Screw WSAM 4x8B	8159440083	4	
	P.C.Board Main	4001000900	1	
	P.C.Board Front	4001001000	1	
	P.C.Board Tuner	4001001010	1	
	P.C.Board Volume	4001001020	1	
	P.C.Board Power	4005011500	1	
	P.C.Board Power	4005011600	1	PT INDO(Only)
	P.C.Board Power Switch	4001000910	1	
	Cable, FPC 23P, 420mm	4118623425	1	
	Ass'y Posistor, 180mm	052438000181	1	

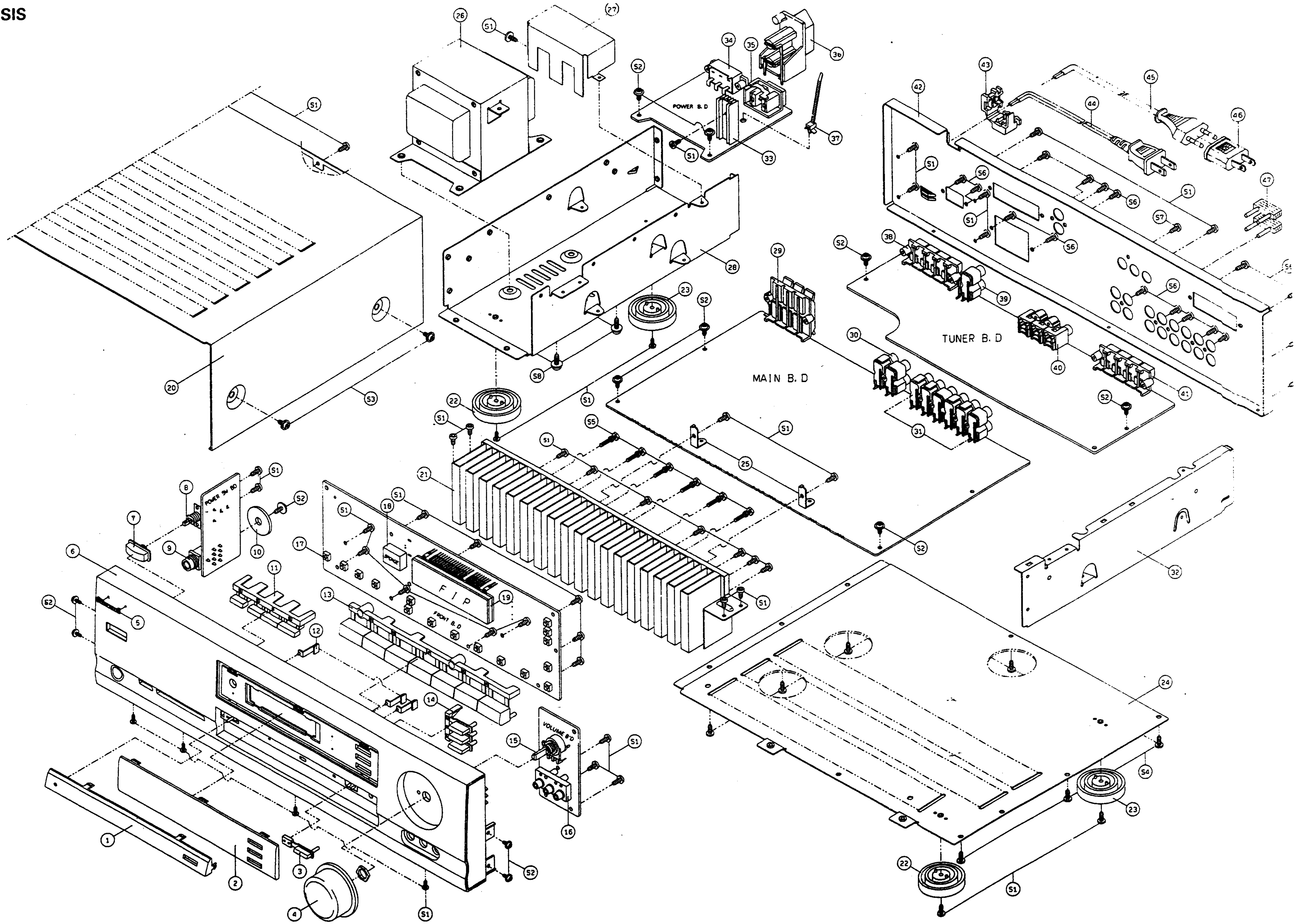
PRODUCT SAFETY NOTICE

Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

EXPLODED VIEW

Model No. : RV-4050I

CABINET & CHASSIS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27
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29
30
31
32
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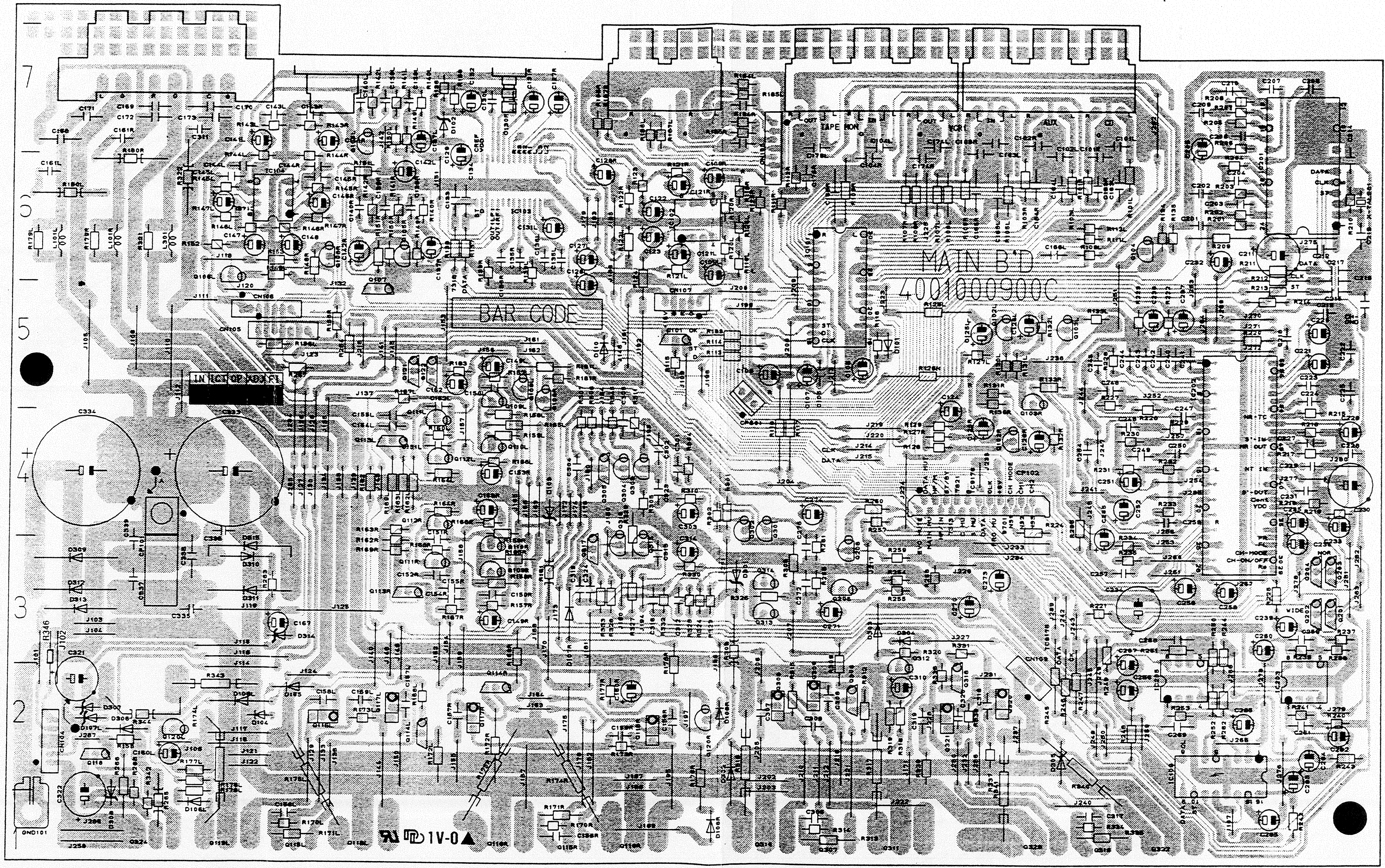
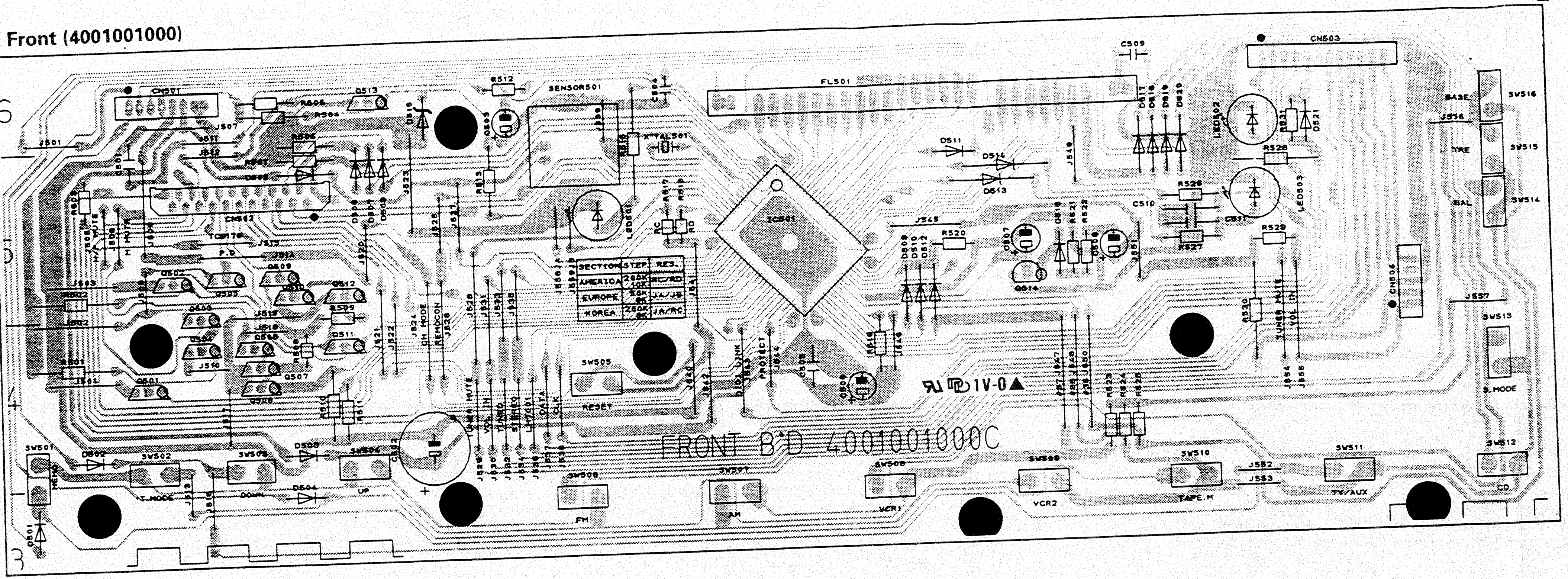
39
40
41
42
43
44
45
46
47
S1
S2
S3
S4
S5
S6
S7
S8
POWER B.D
POWER SW BD
FRONT B.D
F I P
VOLUME B'D
MAIN B. D
TUNER B. D

PRINTED CIRCUIT BOARDS

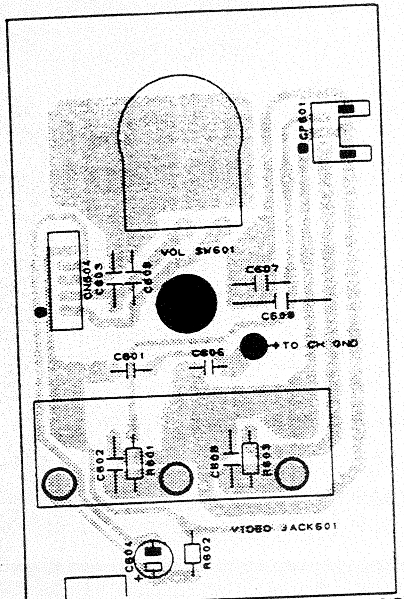
P. C. Board Main (4001000900)


MAIN B'D
4001000900C
BAR CODE
TAPE MON
AUX
CD
1V-0
7
6
5
4
3
2
1

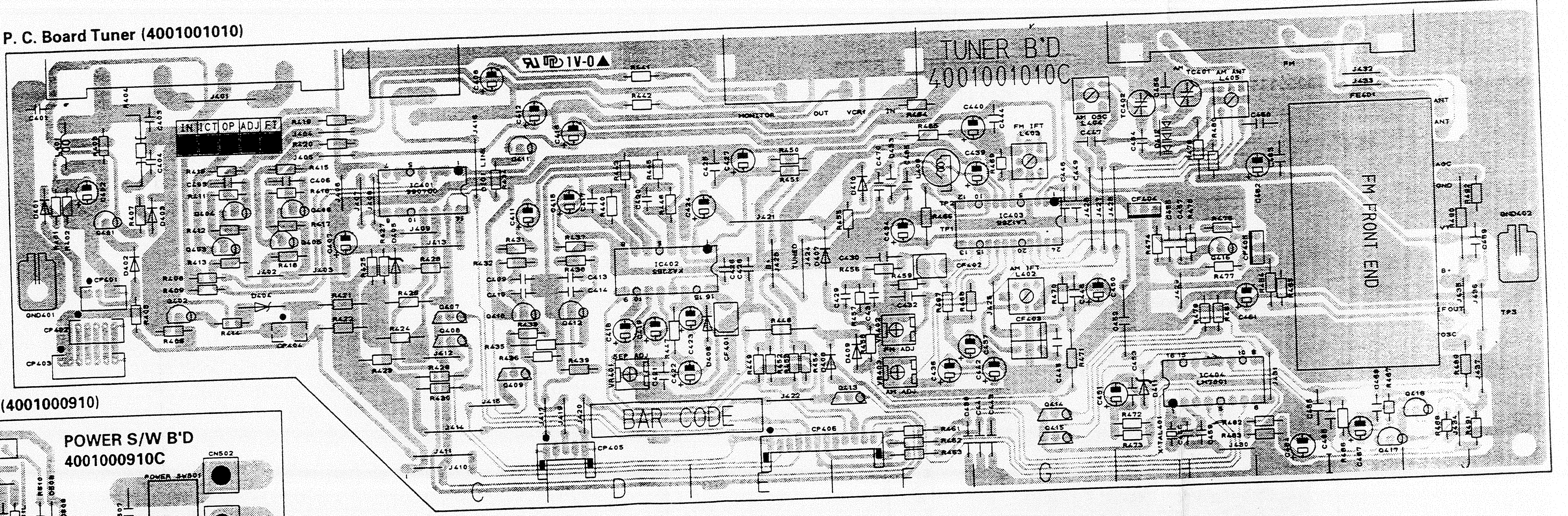
P. C. Board Front (4001001000)


FRONT B'D 4001001000C
FL501
IC501
SENSOR501
XTAL501
CN501
CN502
CN503
CN504
SW501
SW502
SW503
SW504
SW505
SW506
SW507
SW508
SW509
SW510
SW511
SW512
SW513
SW514
SW515
SW516
RESET
T.MODE
DOWN
UP
FM
AM
VCR1
VCR2
TAPE.M
TV/AUX
CD
S.MODE
BASS
TRE
BAL
1V-0▲

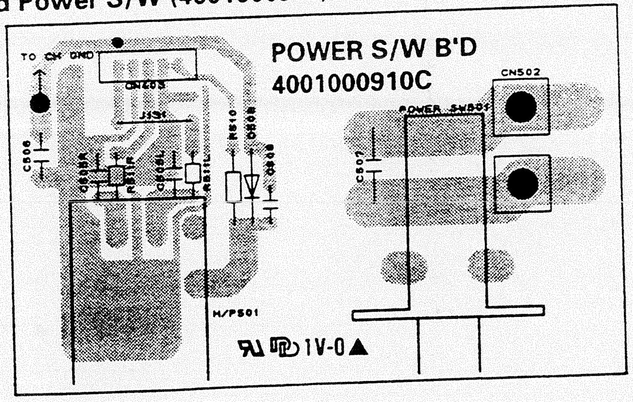
P. C. Board Volume (4001001020)


VOL SW601
CN604
CP601
C607
C609
C601
C606
TO CH GND
VIDEO JACK601

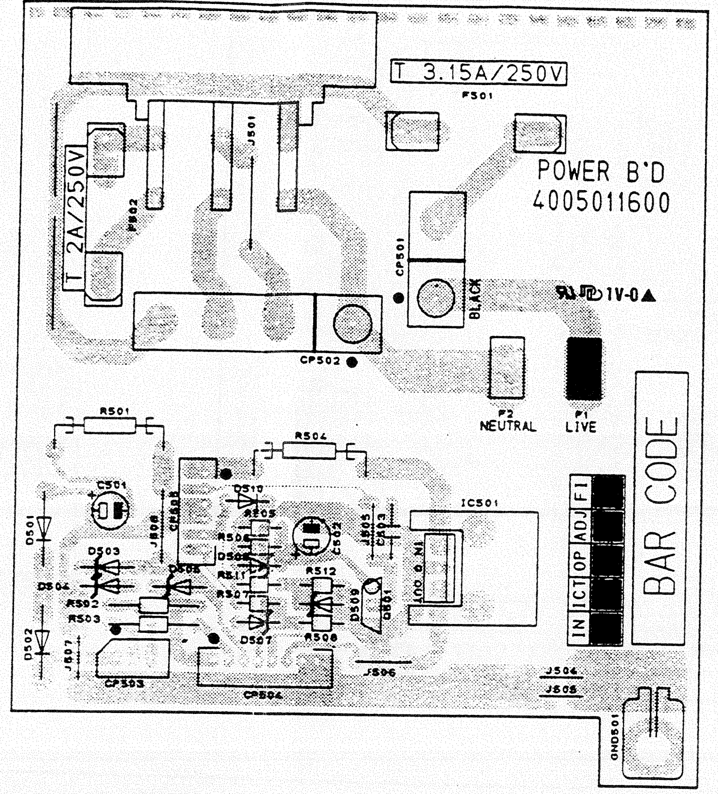
P. C. Board Tuner (4001001010)


TUNER B'D 4001001010C
1V-0▲
IN
CT
OP
ADJ
FE
IC401
IC402
IC403
IC404
MONITOR
OUT
VCR
IN
FM IFT L403
AM IFT L402
AM OSC L404
AM ANT L405
FM FRONT END
FE401
CF401
CF402
CF403
CF404
CF405
CF406
GND401
GND402
ANT
AGC
GND
B+
F OUT
OSC
TP1
TP2
TP3
BAR CODE
C
D
E
F
G

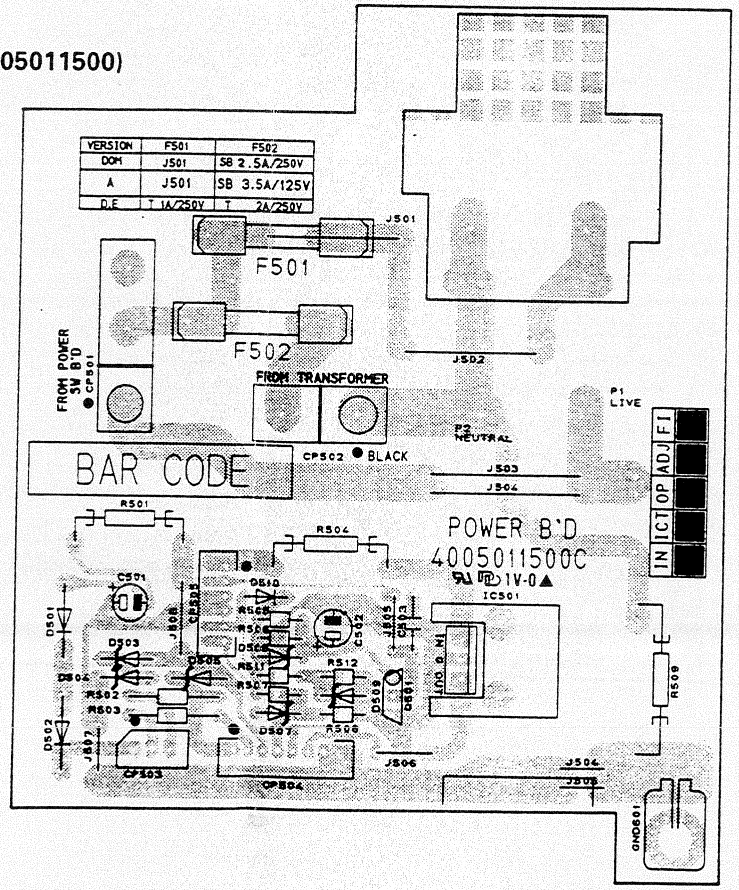
P.C. Board Power S/W (4001000910)


POWER S/W B'D
4001000910C
TO CH GND
CN503
CN502
J131
POWER SW501
C807
C808
R810
D808
H/P501
1V-0▲

P. C. Board Power (4005011600)


T 3.15A/250V
F501
J501
POWER B'D
4005011600
T 2A/250V
F502
CP501
BLACK
CP502
1V-0▲
F2
NEUTRAL
F1
LIVE
BAR CODE
IN
ICT
OP
ADJ
FI
R501
R504
C501
D501
D502
D503
D504
D505
D506
D507
D508
D509
D510
R502
R503
R505
R506
R507
R508
R511
R512
C502
C503
IC501
Q501
CP503
CP504
J504
J505
J506
J507
J508
GND501

P. C. Board Power (4005011500)


VERSION
F501
F502
DOM
J501
SB 2.5A/250V
A
J501
SB 3.5A/125V
D.E
T 1A/250V
T 2A/250V
J501
F501
F502
J502
FROM POWER
SW B'D
CP501
FROM TRANSFORMER
CP502
BLACK
P1
LIVE
P2
NEUTRAL
J503
J504
BAR CODE
POWER B'D
4005011500C
1V-0▲
IN
ICT
OP
ADJ
FI
R501
R504
R509
C501
IC501
D501
D502
D503
D504
D505
D506
D507
D508
D509
D510
R502
R503
R505
R506
R507
R511
R512
C502
C503
Q501
CP503
CP504
J504
J505
J506
J507
J508
GND501

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE : Products marked with ⚠ have special characteristics important to safety. If you replace of these components, read carefully the product safety notice in this manual.
Resistor/Capacitor Tolerance, D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : (+80, -20%).

Ref.No.	Description					Part No.	Q'ty	Version
	A'ssy P.C. Board Main					054010110107		A,B,E
	Ass'y P.C. Board Main					054010410108		D,IU
	Ass'y P.C. Board Main					054010810109		KS
	Wire Lug, #24BK200 LF 0.5/0.5					152624102057	1	
	Pipe Ceramic 12mm					4855000111	12	
	Terminal Ground					4235007310	1	
29	Terminal Speaker, 6P					4408107410	1	
30	Jack RCA, 4P					4438103110	1	
31	Jack RCA, 6P					4438103210	2	
C101L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C101L/R)	Not Used !							A,B,E,KS
C102L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C102L/R)	Not Used !							A,B,E,KS
C103L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C103L/R)	Not Used !							A,B,E,KS
C104L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D, IU
(C104L/R)	Not Used !							A,B,E,KS
C105	Ceramic Tubular	100	pF	50 V	J	3519101935	1	
C106	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C107/C108	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C109L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C121L/R	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C122-C124	Electrolytic SG	47	µF	25 V	M	3479347041	3	
C125L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C126L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C127L/R	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C128L/R	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C129	Electrolytic SG	22	µF	50 V	M	3479322071	1	
C130L/R	Mylar	0.0022	µF	100 V	J	3679222120	2	
C131L/R	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C132	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C133/C134	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C135L/R	Mylar	0.1	µF	63 V	K	3679104297	2	
C136L/R	Mylar	0.1	µF	63 V	K	3679104297	2	
C137L/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C138L/R	Mylar	0.018	µF	100 V	J	3679183120	2	
C139L/R	Mylar	0.02	µF	100 V	J	3679203120	2	
C140L/R	Mylar	0.022	µF	100 V	J	3679223120	2	
C141L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C142L/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C143L/R	Ceramic Tubular	820	pF	50 V	J	3519821936	2	
C144L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C145L/R	Ceramic Tubular	150	pF	50 V	J	3519151935	2	
C146L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C147/C148	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C149L/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C150L/R	Ceramic Tubular	470	pF	50 V	J	3519471935	2	
C151L/R	Ceramic Tubular	470	pF	50 V	J	3519471935	2	
C152L/R	Ceramic Tubular	27	pF	50 V	J	3519270935	2	
C153L/R	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C154L/R	Ceramic Tubular	47	pF	50 V	J	3519470935	2	
C155L/R	Ceramic Tubular	5.6	pF	50 V	J	3519056935	2	
C156L/R	Ceramic Tubular	1000	pF	50 V	J	3519102935	2	
C157L/R	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C158L/R	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C159L/R	Mylar	0.047	µF	100 V	J	3679473120	2	
C160L/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C161L/R	Mylar	0.047	µF	100 V	J	3679473120	2	
C162	Electrolytic SG	22	µF	50 V	M	3479322071	1	
C163L/R	Ceramic Tubular	100	µF	50 V	J	3519101935	2	D,IU
(C163L/R)	Not Used!							A,B,E,KS
C164L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C164L/R)	Not Used!							A,B,E,KS
C165L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C165L/R)	Not Used!							A,B,E,KS
C166L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C166L/R)	Not Used!							A,B,E,KS
C167	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C168/C169	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	2	D,IU
(C168/C169)	Not Used!							A,B,E,KS
C171/C172	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	2	D,IU
(C171/C172)	Not Used!							A,B,E,KS
C173	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	1	D,IU
(C173)	Not Used!							A,B,E,KS
C174L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
C174L/R	Not Used!							A,B,E,KS
C175L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C175L/R)	Not Used!							A,B,E,KS
C176	Ceramic Tubular	82	pF	50 V	J	3519820935	1	D,IU
(C176)	Not Used!							A,B,E,KS
C201/C202	Mylar	0.0056	µF	100 V	J	3679562120	2	
C203	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C204	Mylar	0.1	pF	63 V	K	3679104297	1	
C205	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C206/C207	Mylar	0.047	µF	100 V	J	3679473120	2	
C208	Mylar	0.1	µF	63 V	K	3679104297	1	
C209	Mylar	0.0033	µF	100 V	J	3679332120	1	
C210	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C211	Electrolytic SG	220	µF	10 V	M	3479322121	1	
C212	Ceramic Tubular	0.022	µF	50 V	J	3519223935	1	
C213/C214	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C215-C217	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C218	Mylar	0.1	µF	63 V	K	3679104297	1	
C219	Mylar	0.022	µF	100 V	J	3679223120	1	
C220/C221	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C222-C224	Mylar	0.22	µF	63 V	K	3679224297	3	
C225	Mylar	0.68	µF	63 V	K	3679684297	1	
C226	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C227	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C228	Mylar	0.0022	µF	100 V	J	3679222120	1	
C229	Mylar	0.047	µF	100 V	J	3679473120	1	
C230	Electrolytic SG	220	µF	16 V	M	3479322131	1	
C231	Mylar	0.0056	µF	100 V	J	3679562120	1	
C232/C233	Electrolytic SG	1	µF	50 V	M	3479310971	2	
C234	Electrolytic SG	220	µF	16 V	M	3479322131	1	
C235	Electrolytic SG	0.22	µF	50 V	M	3479322871	1	
C236	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C237	Electrolytic SG	0.22	µF	50 V	M	3479322871	1	
C238	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C239	Electrolytic SG	0.68	µF	50 V	M	3479368871	1	
C240-C242	Mylar	0.1	µF	63 V	K	3679104297	2	
C243/C244	Mylar	0.22	µF	63 V	K	3679224971	2	
C245	Mylar	0.1	µF	63 V	K	3679104297	1	
C246	Poly	680	pF	50 V	J	3619681110	1	
C247	Mylar	0.047	µF	100 V	J	3679473120	1	
C248	Mylar	0.1	µF	63 V	K	3679104297	1	
C249	Poly	680	pF	50 V	J	3619681110	1	
C250	Mylar	0.047	µF	100 V	J	3679473120	1	
C251	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C252	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C253/C254	Mylar	0.1	µF	63 V	K	3679104297	2	
C255	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C256	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C257	Mylar	0.0047	µF	100 V	J	3679472120	1	
C258	Electrolytic SG	22	µF	50 V	M	3479322071	1	
C259	Ceramic Tubular	820	pF	50 V	J	3519821935	1	
C260	Electrolytic SA	10	pF	50 V	M	3479210071	1	
C261	Ceramic Disc	390	pF	50 V	Z	3579391130	1	
C262	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C263/C264	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C265	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C266/C267	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C268	Ceramiac Tubular	680	pF	50 V	J	3519681935	1	
C269	Ceramic Tubular	560	pF	50 V	J	3519561935	1	
C270/C271	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C272	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C273/C274	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C275	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C276	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C301	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C302	Ceramic Tubular	27	pF	50 V	J	3519270935	1	
C303	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C304	Ceramic Tubular	20	pF	50 V	J	3519200935	1	
C305	Ceramic Tubular	8.2	pF	50 V	J	3519082935	1	

Ref.No.	Description					Part No.	Q'ty	Version
C306	Ceramic Tubular	1000	pF	50 V	J	3519102935	1	
C307/C308	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C309	Mylar	0.047	µF	100 V	J	3679473120	1	
C310	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C311	Mylar	0.047	µF	100 V	J	3679473120	1	
C312	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C313	Ceramic Tubular	27	pF	50 V	J	3519270935	1	
C314	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C315	Ceramic Tubular	20	pF	50 V	J	3519200935	1	
C316	Ceramic Tubular	8.2	pF	50 V	J	3519082935	1	
C317	Ceramic Tubular	1000	pF	50 V	J	3519102935	1	
C318/C319	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C320	Mylar	0.047	µF	100 V	J	3679473120	1	
C321	Electrolytic SG	220	µF	25 V	M	3479322141	1	
C322	Electrolytic SG	100	µF	25 V	M	3479310141	1	
C323/C324	Ceramic Tubular	5.6	pF	50 V	J	3519056935	2	
C333/C334	Electrolytic HS	4700	µF	50 V	M	3419547225	2	
C335-C339	Ceramic Disc	0.01	µF	500 V	Z	3509103451	2	
CN104	Lead Ass'y, 6P, 240mm					436206243332	1	
CN105	Lead Ass'y, 7P, 200mm					436207223332	1	KS(Only)
(CN105)	Not Used!							A,B,D,E,IU
CN106	Lead Ass'y, 7P, 120mm					436207123332	1	
CN107	Lead Ass'y, 5P, 120mm					436205123332	1	
CN108	Lead Ass'y, 3P, 300mm					436203307132	1	
CN109	Lead Ass'y, 4P, 300mm					436204303332	1	
CP101	Wafer, LV 3P					4428525790	1	
CP102	Wafer, FPC 23P					4428526355	1	
D101	1N4148M, Switching					2058322101	1	
D102	Diode Zener, UZ 9.1 BSC					2258599150	1	
D103	Diode Zener, UZ 27.0BSC					2258599115	1	
D104/D105	1N4148M, Switching					2058322101	2	
D106L/R	1N4148M, Switching					2058322101	2	
D107L/R	1N4148M, Switching					2058322101	2	
D108L/R	1N4148M, Switching					2058322101	2	
D110	1N4148M, Switching					2058322101	1	
D301	Diode Zener, UZ 27.0BSC					2258599115	1	
D302-D305	1N4148M, Switching					2058322101	4	
D306/D307	Diode Zener, UZ 7.5BSC					2258599130	2	
D308	Diode Zener, UZ16.0BSD					2258599117	1	
⚠ D309-D312	1N5402, Rectifier					2058100136	4	
⚠ D313	1N4002, Rectifier					2258100135	1	
D314	Diode Zener, UZ16.0BSD					2258599117	1	
⚠ D315	1N4002, Rectifier					2258100135	1	
IC101	LC7821					2168017132	1	
IC102	KIA4559P/KIA75559P, OP AMP					2168206104	1	
IC103	TDA7313D, ELEC-Volume					2168225101	1	
IC104	KIA4559P/KIA75559P, OP AMP					2168206104	1	
IC109	TC9176P					2138007124	1	
IC201	NJU9701D					2168020114	1	
IC202	NJUM2177L					2168020115	1	
IC203	KIA4559P/KIA75559P, OP AMP					2168206104	1	
IC205	KIA4559P/KIA75559P, OP AMP					2168206104	1	
L101L/R	Coil inductor, 0.5 µF					2648001010	2	
L301	Coil Inductor, 0.5 µF					2648001010	1	
Q101	KTC114YS, NPN, Silicon					2208622106	1	
Q102L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q103L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q104	KTA1015Y/KTA1266, PNP, Silicon					2208206105	1	
Q105L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q106L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q107	KTA114YS/KRA107M					2238006103	1	
Q108L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q109L/R	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q110L/R	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q111L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q112L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q113L/R	BKTA949Y					2208206102	2	
Q114L/R	KTC2229Y					2208606107	2	
Q115L/R	2SC4137, NPN, Bais					2008622110	2	
Q116L/R	KSC2690A-Y, NPN, Silicon					2008602102	2	
Q117L/R	KSA1220A-Y, PNP, Silicon					2008202101	2	
Q118	KTC114YS, NPN, Silicon					2208622106	1	
Q118L/R	2SB688/KTB688, PNP, Silicon					2028107106	2	
Q119L/R	2SD718/KTD718, NPN, Silicon					2028407109	2	
Q120L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q121	KTA114YS/KRA107M					2238006103	1	
Q122	KTC114YS, NPN, Silicon					2208622106	1	
Q201	KTA114YS/KRA107M					2238006103	1	
Q202	KTC114YS, NPN, Silicon					2208622106	1	
Q203	KTA114YS/KRA107M					2238006103	1	
Q204	KTC114YS, NPN, Silicon					2208622106	1	
Q205/Q206	KTD1302S, NPN, Silicon					2208606112	2	
Q301/Q302	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q303/Q304	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q305	BKTA949Y					2208206102	1	
Q306	KTC2229Y					2208606107	1	
Q307	2SC4137, NPN, Bais					2008622110	1	
Q308	KSC2690A-Y, NPN, Silicon					2008602102	1	
Q309	KSA1220A-Y, PNP, Silicon					2008202101	1	
Q310	2SD718/KTD718, NPN, Silicon					2028407109	1	
Q311	2SB688/KTB688, PNP, Silicon					2028107106	1	
Q312	KTC1815Y/KTC3198, NPN, Silicon					2208606104	1	
Q313/Q314	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q315/Q316	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q317	BKTA949Y					2208206102	1	
Q318	KTC2229Y					2208606107	1	
Q319	2SC4137, NPN, Bais					2008622110	1	
Q320	KSC2690A-Y, NPN, Silicon					2008602102	1	
Q321	KSA1220A-Y, PNP, Silicon					2008202101	1	
Q322	2SD2059Y/KTD2059Y, NPN, Silicon					2028406123	1	
Q323	2SB1367Y/KTB1367Y, PNP, Silicon					2028106109	1	
Q324	2SD2059Y/KTD2059Y, NPN, Silicon					2028406123	1	
R101L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R103L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R105L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R107L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R108L/R	Carbon Film	100	kohm	1/5W	J	3069104970	2	D,IU
(R108L/R)	Not Used!							A,B,E,KS
R109L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R111L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R112	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R112L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	D,IU
(R112L/R)	Not Used !							A,B,E,KS
R113	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R114/R115	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R116	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R117/R118	Carbon Film	470	ohm	1/5 W	J	3069471970	2	
R119L/R	Carbon Film	470	ohm	1/5 W	J	3069471970	2	
R120L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R121L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R122L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R123/R124	Carbon Film	470	ohm	1/5 W	J	3069471970	2	
R125L/R	Carbon Film	47	kohm	1/5 W	J	3069473970	2	
R126L/R	Carbon Film	470	kohm	1/5 W	J	3069471970	2	
R127L/R	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R128	Carbon Film	27	kohm	1/5 W	J	3069273970	1	
R129	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R130L/R	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R131L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R132L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R133L/R	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2.	
R134	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R135	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R136	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R137/R138	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R139L/R	Carbon Film	6.8	kohm	1/5 W	J	3069682970	2	
R140L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R141L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R142L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R143L/R	Carbon Film	47	kohm	1/5 W	J	3069473970	2	
R144L/R	Carbon Film	1.2	kohm	1/5 W	J	3069122970	2	
R145L/R	Carbon Film	15	kohm	1/5 W	J	3069153970	2	
R146L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R147L/R	Carbon Film	10	ohm	1/5 W	J	3069100970	2	
R148L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R149L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R150L/R	Carbon Film	47	kohm	1/5 W	J	3069473970	2	
R151L/R	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R152/R153	Carbon Film	100	ohm	1/5 W	J	3069101970	2	
R155	Carbon Film	20	kohm	1/5 W	J	3069203970	1	
R156L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	A,B,D,E,IU
(R156L/R)	Not Used!							KS

Ref.No.	Description		Part No.	Q'ty	Version
R157L/R	Carbon Film	39 kohm 1/5 W J	3069393970	2	
R158L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	
R159L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	
R160L/R	Carbon Film	680 ohm 1/5 W J	3069681970	2	
R161	Metal Film	2.2 kohm 1 W J	3029222472	1	
R162L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	
R163L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	
R164L/R	Carbon Film	10 kohm 1/5 W J	3069103970	2	
R165L/R	Carbon Film	33 kohm 1/5 W J	3069333970	2	
R166L/R	Carbon Film	2.4 kohm 1/5 W J	3069242970	2	
R167L/R	Carbon Film	20 kohm 1/5 W J	3069203970	2	
R168L/R	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	
R169L/R	Carbon Film	120 ohm 1/5 W J	3069121970	2	
R170L/R	Carbon Film	2.7 kohm 1/5 W J	3069272970	2	
R171L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	
R172L/R	Carbon Film	120 ohm 1/5 W J	3069121970	2	
R173L/R	Carbon Film	220 ohm 1/5 W J	3069221970	2	
R174L/R	Cement	0.27 ohm 3 W K	3059278682	2	
R175L/R	Cement	0.27 ohm 3 W K	3059278682	2	
R176L/R	Carbon Film	330 ohm 1/5 W J	3069331970	2	
R177L/R	Carbon Film	4.7 kohm 1/5 W J	3069472970	2	
R178L/R	Carbon Film	15 kohm 1/5 W J	3069153970	2	
R179L/R	Carbon Film	3.3 ohm 1/5 W J	3069339970	2	
R180L/R	Metal Film	15 ohm 1 W J	3029150472	2	
R181L/R	Carbon Film	3 kohm 1/5 W J	3069302970	2	
R182	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R183	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R184L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2	
R185L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	KS(Only)
(R185L/R)	Not Used!				A,B,E,D,IU
R186L/R	Carbon Film	100 kohm 1/5 W J	3069104970	2	
R187L/R	Carbon Film	1 kohm 1/5 W J	3069102970	2	KS(Only)
(R187L/R)	Not Used!				A,B,E,D,IU
R188	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R201	Carbon Film	7.5 kohm 1/5 W J	3069752970	1	
R202	Carbon Film	18 kohm 1/5 W J	3069183970	1	
R203	Carbon Film	5.6 kohm 1/5 W J	3069562970	1	
R204/R205	Carbon Film	22 ohm 1/5 W J	3069220970	2	
R206	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R207	Carbon Film	18 kohm 1/5 W J	3069183970	1	
R208	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R209	Carbon Film	82 ohm 1/5 W J	3069820970	1	
R210	Carbon Film	1 ohm 1/5 W J	3069105970	1	
R211-R213	Carbon Film	1 kohm 1/5 W J	3069102970	3	
R214	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R215	Carbon Film	330 kohm 1/5 W J	3069334970	1	
R216/R217	Carbon Film	15 kohm 1/5 W J	3069153970	2	
R218/R219	Carbon Film	100 kohm 1/5 W J	3069104970	2	
R220	Carbon Film	8.2 kohm 1/5 W J	3069822970	1	
R221-R224	Carbon Film	100 ohm 1/5 W J	3069101970	4	
R225	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R226	Carbon Film	7.5 kohm 1/5 W J	3069752970	1	
R227	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R228	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R229	Carbon Film	7.5 kohm 1/5 W J	3069752970	1	
R230	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R231	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R232	Carbon Film	10 ohm 1/5 W J	3069106970	1	
R233/R234	Carbon Film	22 kohm 1/5 W J	3069223970	2	
R235	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R236	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R237	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R238	Carbon Film	3 kohm 1/5 W J	3069302970	1	
R239	Carbon Film	9.1 kohm 1/5 W J	3069912970	1	
R240	Carbon Film	3 kohm 1/5 W J	3069302970	1	
R241	Carbon Film	9.1 kohm 1/5 W J	3069912970	1	
R242R243	Carbon Film	470 kohm 1/5 W J	3069471970	2	
R244	Carbon Film	220 kohm 1/5 W J	3069224970	1	
R245-R247	Carbon Film	1 kohm 1/5 W J	3069102970	3	
R248/R249	Carbon Film	220 ohm 1/5 W J	3069221970	2	
R250	Carbon Film	2 kohm 1/5 W J	3069202970	1	
R251	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R252	Carbon Film	2 kohm 1/5 W J	3069202970	1	
R253	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R254	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R255	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R256	Carbon Film	39 kohm 1/5 W J	3069393970	1	
R257	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R258	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R259	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R260	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R261	Carbon Film	20 kohm 1/5 W J	3069203970	1	
R262	Carbon Film	220 kohm 1/5 W J	3069224970	1	
R263	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R264	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R265	Carbon Film	1 ohm 1/4 W J	3069109270	1	
R266	Carbon Film	3.3 ohm 1/5 W J	3069339970	1	
R267/R268	Carbon Film	100 kohm 1/5 W J	3069104970	2	
R301/R302	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	
R303	Metal Film	2.2 kohm 1 W J	3029222472	1	
R304	Carbon Film	680 ohm 1/5 W J	3069681970	1	
R305	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R306	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R307	Carbon Film	120 ohm 1/5 W J	3069121970	1	
R308	Carbon Film	33 kohm 1/5 W J	3069333970	1	
R309	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R310	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R311	Carbon Film	27 ohm 1/5 W J	3069273970	1	
R312	Carbon Film	120 ohm 1/5 W J	3069121970	1	
R313	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R314	Carbon Film	2.7 kohm 1/5 W J	3069272970	1	
R315	Carbon Film	220 ohm 1/5 W J	3069221970	1	
R316/R317	Cement	0.27 ohm 3 W K	3059278682	2	
R318	Carbon Film	330 ohm 1/5 W J	3069331970	1	
R319	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R320	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R321	Carbon Film	3.3 ohm 1/5 W J	3069339970	1	
R322	Metal Film	10 ohm 1 W J	3029100472	1	
R323/R324	Carbon Film	3.3 kohm 1/5 W J	3069332970	2	
R325	Carbon Film	680 ohm 1/5 W J	3069681970	1	
R326	Carbon Film	33 kohm 1/5 W J	3069333970	1	
R327/R328	Carbon Film	1 kohm 1/5 W J	3069102970	2	
R329	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R330	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R331	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R332	Carbon Film	39 kohm 1/5 W J	3069393970	1	
R333	Carbon Film	120 ohm 1/5 W J	3069121970	1	
R334	Carbon Film	2.7 kohm 1/5 W J	3069272970	1	
R335	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R336	Carbon Film	120 ohm 1/5 W J	3069121970	1	
R337	Carbon Film	330 ohm 1/5 W J	3069331970	1	
R338	Carbon Film	220 ohm 1/5 W J	3069221970	1	
R339	Carbon Film	330 ohm 1/5 W J	3069331970	1	
R340/R341	Cement	0.47 ohm 3 W K	3059478782	2	
R342	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R343	Metal Film	680 ohm 2 W J	3029681572	1	
R344	Metal Film	390 ohm 1 W J	3029391470	1	
R345	Carbon Film	1 kohm 1/5 W J	3069102970	1	
X-TAL201	Resonator, CSA2.0MG-TF01		3938124001	1	
	A'ssy P.C. Board Tuner		054010110110		A
	A'ssy P. C. Board Tuner		054010210111		B
	A'ssy P. C. Board Tuner		054010410112		D,IU
	A'ssy P. C. Board Tuner		054010510113		E
	A'ssy P. C. Board Tuner		054010810114		KS
	Terminal Ground		4235007310	1	
38	Terminal Speaker, 4P		4408105410	1	
39	Jack RCA, 2P		4438112010	1	
40	Jack RCA, 3P		4438114310	1	
41	Antenna Terminal, 4P		4408107910	1	A,KS
	Antenna Terminal, 4P		4408108210	1	D,E
C402	Electrolytic SG	4.7 µF 50 V M	3479347971	1	
C403	Ceramic Tubular	0.0047 µF 50 V J	3519472935	2	D,IU
(C403)	Not Used!				A,B,E,KS
C404	Mylar	0.047 µF 100 V J	3679473120	1	
C405/C406	Ceramic Tubular	1 pF 50 V J	3519010935	2	
C407	Electrolytic SG	100 µF 16 V M	3479310131	1	
C408	Electrolytic SG	470 µF 10 V M	3479347121	1	
C409	Mylar	0.0082 µF 100 V J	3679822120	1	
C410	Mylar	0.0018 µF 100 V J	3679182120	1	
C411	Electrolytic SG	2.2 µF 50 V M	3479322971	1	
C412	Electrolytic SG	470 µF 10 V M	3479347121	1	

Ref.No.	Description		Part No.	Q'ty	Version
C413	Mylar	0.0082 µF 100 V J	3679822120	1	
C414	Mylar	0.0018 µF 100 V J	3679182120	1	
C415	Electrolytic SG	2.2 µF 50 V M	3479322971	1	
C416	Electrolytic SG	33 µF 16 V M	3479333031	1	
C417	Ceramic Disc	390 pF 50 V J	3519391935	1	A,KS
(C417)	Ceramic Disc	180 pF 50 V J	3519181936	1	B,D,IU,E
C418	Electrolytic SG	1 µF 50 V M	3479310971	1	
C419	Electrolytic SG	10 µF 50 V M	3479310071	1	
C420	Ceramic Disc	390 pF 50 V J	3519391935	1	A,KS
(C420)	Ceramic Disc	180 pF 50 V J	3519181936	1	B,D,IU,E
C421	Ceramic Tubular	120 pF 50 V J	3519121935	1	
C422	Electrolytic SG	3.3 µF 50 V M	3479333971	1	
C423	Electrolytic sG	47 µF 50 V M	3479347071	1	
C424	Electrolytic SG	2.2 µF 50 V M	3479322971	1	
C425	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C426	Mylar	0.047 µF 100 V J	3679473120	1	
C427	Electrolytic SG	220 µF 16 V M	3479322131	1	
C428	Poly	680 pF 50 V J	3619681110	1	
C429	Mylar	0.056 µF 100 V J	3679563120	1	
C430	Ceramic Tubular	330 pF 50 V J	3519331935	1	
C432	Ceramic Tubular	0.047 µF 50 V Z	3519473935	1	
C433	Ceramic Tubular	68 pF 50 V J	3519680935	1	D,IU
(C433)	Not Used!				A,B,E,KS
C434	Electrolytic SG	4.7 µF 50 V M	3479347971	1	
C435	Ceramic Tubular	330 pF 50 V J	3519331935	1	
C436	Electrolytic SG	10 µF 50 V M	3479310071	1	
C437	Electrolytic SG	3.3 µF 50 V M	3479333971	1	
C438	Ceramic Tubular	47 pF 50 V J	3519470935	1	
C439	Electrolytic SG	1 µF 50 V M	3479310971	1	
C440	Electrolytic SG	47 µF 25 V M	3479347041	1	
C441	Ceramic Tubular	47 pF 50 V J	3519470935	1	
C442	Electrolytic SG	0.47 µF 50 V M	3479347871	1	
C443	Ceramic Tubular	47 pF 50 V J	3519470935	1	
C444	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C445	Ceramic Tubular	68 pF 50 V J	3519680935	1	
C446-C449	Ceramic Tubular	0.022 µF 50 V J	3519223935	4	
C450	Electrolytic SG	4.7 µF 50 V M	3479347971	1	
C451	Electrolytic SG	47 µF 25 V M	3479347041	1	
C452/C453	Ceramic Tubular	0.01 µF 50 V J	3519103935	2	
C454	Poly	470 pF 50 V J	3619471110	1	
C455-C457	Ceramic Tubular	0.022 µF 50 V J	3519223935	3	
C458/C459	Ceramic Disc (CH)	33 pF 50 V Z	3528330210	2	
C460	Ceramic Tubular	0.022 µF 50 V J	3519223935	1	
C461	Electrolytic SG	100 µF 16 V M	3479310131	1	
C462	Electrolytic SG	0.47 µF 50 V M	3479347871	1	
C463	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C464	Electrolytic SG	47 µF 25 V M	3479347041	1	
C465	Not Used !				
C466	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C467	Electrolytic SG	1 µF 50 V M	3479310971	1	
C468/C469	Ceramic Tubular	0.01 µF 50 V J	3519103935	2	
C470	Ceramic Tubular	150 pF 50 V J	3519151935	1	D,IU
(C470)	Not Used!				A,B,E,KS
CF401	Resonator, CSB456F11		3938001009	1	
CF402	Filter Ceramic, BFU450C4N		3908001020	1	
CF403	Filter Ceramic, SFZ450F		3908001380	1	
CF404/CF405	Filter, SFE10.7MA8-A-TF21		3978011001	2	A,KS
(CF404/CF405)	Filter, SFE10.7MS3GH-ATF21		3978011011	2	D,IU,B,E
CP401	Wafer, 4P		4428516310	1	
CP402	Wafer, 5P		4428516410	1	
CP403	Wafer, 7P		4428516610	1	
CP404	Wafer, 2P		4428516110	1	
CP405	Wafer, 5P		4428525550	1	
CP406	Wafer, 12P		4428525620	1	
D401-D403	1N4148M, Switching		2058322101	3	
D404	Diode Zener, UZ 8.2BSB		2258599123	1	
D405	Diode Zener, UZ 6.8BSC		2258599121	1	
D406-D410	1N4148M, Switching		2058322101	5	
D411	Diode Zener, UZ 5.1BSB		2258599103	1	
D412	Diode Varactor, KV1236Z		2058819106	1	
FE401	FM Tuner, FE407-G60		3928801890	1	A,KS,B,E
(FE401)	FM Tuner, FTH3-505HB		3928101790	1	D,IU
IC401	GD4066B		2138001101	1	
IC402	KA2265, MPX		2168002112	1	
IC403	LA1266		2168017128	1	
IC404	LM7001		2138017112	1	
L401	Coil inductor, 0.5 µF		2648001010	1	
L402	Coil, AM-IFT P-7SB		2848001250	1	
L403	Coil, FM-IFT		2838501080	1	
L404	Coil AM-OSC		2638201150	1	
L405	Coil, AM-ANT		2808201120	1	
L408	Coil Inductor, 20.8 mH		2648001430	1	D,IU
(L406)	Jumper				A,KS,B,E
Q401-Q403	KTC1815Y/KTC3198, NPN, Silicon		2208606104	3	
Q404	KTA1015Y/KTA1266, PNP, Silicon		2208206105	1	
Q405	KTC1815Y/KTC3198, NPN, Silicon		2208606104	1	
Q406	KTA1015Y/KTA1266, PNP, Silicon		2208206105	1	
Q407/Q408	KTC114YS, NPN, Silicon		2208622106	2	
Q409	DTA114YS/KRA107M, PNP, Silicon		2238006103	1	
Q410	KTC1815Y/KTC3198, NPN, Silicon		2208606104	1	
Q411	FET, 2SK117		2218207106	1	
Q412	KTC1815Y/KTC3198, NPN, Silicon		2208606104	1	
Q413-Q415	DTA114YS/KRA107M, PNP, Silicon		2238006103	3	
Q416	KTC1923Y/C3194Y, NPN, Silicon		2208406103	1	
Q417/Q418	KTC2240BL/KTC3200, NPN, Silicon		2208806108	2	
R401	Carbon Film	330 ohm 1/5 W J	3069331970	1	
R402	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R403	Carbon Film	3.3 ohm 1/5 W J	3069339970	1	
R404	Metal Film	10 ohm 1 W J	3029100470	1	
R405	Carbon Film	220 ohm 1/5 W J	3069221970	1	
R406	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R407	Carbon Film	15 kohm 1/5 W J	3069153970	1	
R408/R409	Carbon Film	8.2 kohm 1/5 W J	3069822970	2	
R410	Carbon Film	180 ohm 1/5 W J	3069181970	1	
R411/R412	Carbon Film	1.2 kohm 1/5 W J	3069122970	2	
R413	Carbon Film	12 kohm 1/5 W J	3069123970	1	
R414	Carbon Film	7.5 kohm 1/5 W J	3069752970	1	
R415	Carbon Film	180 ohm 1/5 W J	3069181970	1	
R416/R417	Carbon Film	1.2 kohm 1/5 W J	3069122970	2	
R418	Carbon Film	12 kohm 1/5 W J	3069123970	1	
R419/R420	Carbon Film	150 ohm 1/5 W J	3069151970	2	
R421/R422	Carbon Film	10 kohm 1/5 W J	3069103970	2	
R423	Carbon Film	82 kohm 1/5 W J	3069823970	1	
R424	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R425	Carbon Film	470 ohm 1/5 W J	3069471970	1	
R426	Carbon Film	47 kohm 1/5 W J	3069473970	1	
R427	Carbon Film	470 ohm 1/5 W J	3069471970	1	
R428	Carbon Film	82 kohm 1/5 W J	3069823970	1	
R429/R430	Carbon Film	68 kohm 1/5 W J	3069683970	2	
R431	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R432	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R433	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R434	Carbon Film	1 ohm 1/5 W J	3069105970	1	
R435	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R436	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R437	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R438	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R439	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R440	Carbon Film	180 kohm 1/5 W J	3069184970	1	A,KS
(R440)	Carbon Film	270 kohm 1/5 W J	3069274970	1	D,IU,B,E
R441/R442	Carbon Film	75 ohm 1/5 W J	3069750970	2	
R443	Carbon Film	150 kohm 1/5 W J	3069154970	1	A,KS
(R443)	Carbon Film	180 kohm 1/5 W J	3069184970	1	D,IU,B,E
R445	Carbon Film	150 kohm 1/5 W J	3069154970	1	A,KS
(R445)	Carbon Film	180 kohm 1/5 W J	3069184970	1	D,IU,B,E
R446	Carbon Film	180 kohm 1/5 W J	3069184970	1	A,KS
(R446)	Carbon Film	270 kohm 1/5 W J	3069274970	1	D,IU,B,E
R447	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R448	Carbon Film	2.7 kohm 1/5 W J	3069272970	1	
R449	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R450/R451	Carbon Film	270 ohm 1/5 W J	3069271970	2	
R452	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R453/R454	Carbon Film	10 kohm 1/5 W J	3069103970	2	
R455	Carbon Film	27 kohm 1/5 W J	3069273970	1	
R456	Carbon Film	8.2 kohm 1/5 W J	3069822970	1	
R457	Carbon Film	6.8 kohm 1/5 W J	3069682970	1	D,IU,B,E
(R457)	Not Used!				A,KS
R458	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R459	Carbon Film	82 ohm 1/5 W J	3069820970	1	
R461-R463	Carbon Film	2.2 kohm 1/5 W J	3069222970	3	
R465	Carbon Film	100 ohm 1/5 W J	3069101970	1	
R466	Carbon Film	27 kohm 1/5 W J	3069273970	1	A,KS

Ref.No.	Description		Part No.	Q'ty	Version
(R466)	Carbon Film	47 kohm 1/5 W J	3069473970	1	D,IU,B,E
R468	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R469	Carbon Film	2.2 kohm 1/5 W J	3069222970	1	
R470	Carbon Film	68 kohm 1/5 W J	3069683970	1	
R471	Carbon Film	4.3 kohm 1/5 W J	3069432970	1	
R472/R473	Carbon Film	680 ohm 1/5 W J	3069681970	2	
R474/R475	Carbon Film	330 ohm 1/5 W J	3069331970	2	
R476	Carbon Film	470 ohm 1/5 W J	3069471970	1	
R477	Carbon Film	3.3 kohm 1/5 W J	3069332970	1	
R478	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R479	Carbon Film	180 ohm 1/5 W J	3069181970	1	
R479	Carbon Film	270 ohm 1/5 W J	3069271970	1	D,IU(Only)
R480	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R481	Carbon Film	180 ohm 1/5 W J	3069181970	1	
R481	Carbon Film	270 ohm 1/5 W J	3069271970	1	D,IU(Only)
R482/R483	Carbon Film	270 ohm 1/5 W J	3069271970	2	
R484	Carbon Film	180 ohm 1/5 W J	3069181970	1	
R485	Carbon Film	220 ohm 1/5 W J	3069221970	1	
R486	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R487	Carbon Film	1.5 kohm 1/5 W J	3069152970	1	
R488	Carbon Film	1 ohm 1/5 W J	3069105970	1	
R489	Carbon Film	560 ohm 1/5 W J	3069561970	1	
R490	Carbon Film	100 kohm 1/5 W J	3069104970	1	D,IU
(R490)	Not Used!				A,B,E,KS
R491	Carbon Film	10 kohm 1/5 W J	3069103970	1	
R492	Carbon Film	56 kohm 1/5 W J	3069563970	1	D,IU
(R492)	Jumper				A,B,E,KS
TC401	Trimmer, 20P		3838001010	1	
TC402	Trimmer, 10P		3838001000	1	
VR401	Semi Fixed Resistor, 200 k(B)		3248020443	1	
VR402	Semi Fixed Resistor, 50 k(B)		3248050343	1	
VR403	Semi Fixed Resistor, 50 k(B)		3248050343	1	
XTAL401	X-TAL, 7.2 MHz		3908101031	1	
	A'ssy P.C. Board Front		054010110115		A
	A'ssy P.C. Board Front		054010810116		KS
	A'ssy P.C. Board Front		054010210117		B,D,E,IU
	Wire Lug, #24BK200 LF 0.5/0.5		152624102057	1	
17	Switch Tact		4658003710	16	
18	Sponge		6715020730	1	
19(FL501)	FIP5SM6		2328132301	1	
C501	Ceramic Tubular	220 pF 50 V J	3519221935	1	
C502	CAP, FYHOH473Z		3479347314	1	
C503	Electrolytic SG	47 µF 50 V M	3479347071	1	
C504	Mylar	0.047 µF 100 V J	3679473120	1	
C505	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C506	Electrolytic SG	100 µF 10 V M	3479310121	1	
C507/C508	Electrolytic SG	1 µF 50 V M	3479310971	2	
C509	Mylar	0.047 µF 100 V J	3679473120	1	
C510/C511	Ceramic Tubular	220 pF 50 V J	3519221935	2	
CN501	Lead Ass'y, 8P, 300mm		436208303332	1	
CN503	Lead Ass'y, 12P, 450mm		436212453332	1	
CN504	Lead Ass'y, 5P, 100mm		436405103332	1	
CN602	Wafer, FPC 23P		4428526355	1	
D501	1N4148M, Switching		2058322101	1	
D502	1N4148M, Switching		2058322101	1	
D503	1N4002, Retifier		2258100135	1	
D504-D514	1N4148M, Switching		2058322101	11	
D515	Diode Zener, UZ 5.6BSB		2258599104	1	
D516-D521	1N4148M, Switching		2058322101	6	
IC501	CPU, CXP50116-572Q		2138322121	1	
LED501-503	LED, SLR-34URC-F25		2371085701	3	
Q501/Q502	KTC114YS, NPN, Silicon		2208622106	2	
Q503	DTA114YS/KRA107M, PNP, Silicon		2238006103	1	
Q504	KTC114YS, NPN, Silicon		2208622106	1	
Q505/Q506	DTA114YS/KRA107M, PNP, Silicon		2238006103	2	
Q507/Q508	KTC114YS, NPN, Silicon		2208622106	2	
Q509	DTA114YS/KRA107M, PNP, Silicon		2238006103	1	
Q510-Q513	KTC114YS, NPN, Silicon		2208622106	4	
Q514	KTC1815Y/KTC3198, NPN, Silicon		2208606104	1	
R501-R511	Carbon Film	47 kohm 1/5 W J	3069473970	11	
R512	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R513	Carbon Film	22 kohm 1/5 W J	3069223970	1	
R516	Carbon Film	33 ohm 1/5 W J	3069330970	1	
R517	Carbon Film	10 kohm 1/5 W J	3069103970	1	A,KS
(R517)	Not Used!				B,D,E,IU

Ref.No.	Description		Part No.	Q'ty	Version
R518	Carbon Film	10 kohm 1/5 W J	3069103970	1	A,B
(R518)	Not Used!				KS,D,E,IU
R519	Carbon Film	68 kohm 1/5 W J	3069683970	1	
R520	Carbon Film	220 kohm 1/5 W J	3069224970	1	
R521	Carbon Film	22 kohm 1/5 W J	3069223970	1	
R522	Carbon Film	2.2 kohm 1/5 W J	3069222970	1	
R523-R525	Carbon Film	68 kohm 1/5 W J	3069683970	3	
R526/R527	Carbon Film	56 ohm 1/5 W J	3069560970	2	
R528	Carbon Film	220 kohm 1/5 W J	3069224970	1	
R529/R530	Carbon Film	68 kohm 1/5 W J	3069683970	2	
R531	Carbon Film	22 kohm 1/5 W J	3069223970	1	
J558	Jumper			1	A,B
(J558)	Not Used!				KS,D,E,IU
J559	Jumper			1	B,D,E,IU
(J559)	Not Used!				A,KS
X'TAL501	Resonator, CST4.19MGW-TF01		3938124006	1	
FL501	FIP5SM6		2328132301	1	
SENSOR501	Sensor Remote, KRM-34U		2408000131	1	
	A'ssy P.C. Board Volume		054010110118		A,B,E,KS
	A'ssy P.C. Board Volume		054010410119		D,IU
15	Switch Encoder with Nut		3208062810	1	
16	Jack RCA 3P, Gold		4438109810	1	
C601	Ceramic Disc	0.1 µF 50 V Z	3579104530	1	A,B,E,KS
(C601)	Not Used!				D,IU
C602	Ceramic Tubular	100 pF 50 V J	3519101935	1	D,IU
(C602)	Not Used!				A,B,E,KS
C603	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C604	Electrolytic SG	33 µF 16 V M	3479333031	1	
C605	Ceramic Tubular	0.01 µF 50 V J	3519103935	1	
C606	Ceramic Disc	0.1 µF 50 V Z	3579104530	1	
C607	Ceramic Tubular	100 pF 50 V J	3519101935	1	D,IU
(C607)	Not Used!				A,B,E,KS
C608/C609	Ceramic Tubular	100 pF 50 V J	3519101935	2	D,IU
(C608/C609)	Not Used!				A,B,E,KS
CP601	Wafer, 3P		4428525530	1	
R601	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R602	Carbon Film	75 ohm 1/5 W J	3069750970	1	
R603	Carbon Film	1 kohm 1/5 W J	3069102970	1	
	A'ssy P.C. Board Power		054010110120		A
	A'ssy P. C. Board Power		054010210121		B
	A'ssy P. C. Board Power		054010410122		D,E,IU,KS
33	Heatsink Regulator TR.		7505206210	1	
34	Switch Selector, 6P		4618006510	1	PT INDO(Only)
35	Outlet		4448104110	1	A
36	Outlet		4448105510	1	KS
	Outlet		4448103610	1	D
C501	Electrolytic SG	100 µF 50 V M	3479310171	1	
C502	Electrolytic SG	10 µF 50V M	3479310071	1	
C503	Not Used!			1	
⚠ IC501	KA7806, Regulator		2168602106	1	
CP501	Wafer, LV 3P		4428525790	1	
CP501	Wafer, LV 2P		4428525710	1	
CP502	Wafer,LV 2P		4428525780	1	
CP502	Wafer,LV 4P		4428525800	1	
CP503	Wafer, 3P		4428505710	1	
CP504	Wsafer, 8P		4428516710	1	
CP505	Wafer, 6P		4428516510	1	
⚠ D501/D502	1N4002, Rectifier		2258100135	2	
D503/D504	Diode Zener, UZ15.0BSC		2258599109	2	
D505	Diode Zener, UZ 5.6BSC		2258599200	1	
D506	Diode Zener, UZ15.0BSC		2258599109	1	
D507	Diode Zener, UZ12.0BSC		2258599116	1	
D508	Not Used!			1	
D509	Diode Zener, UZ5.1BSB		2258599103	1	
D510	1N4148, Switching		2058322101	1	
⚠ F501	Fuse, T 1 A, 250 V		5508302035	1	D
(F501)	Jumper			1	A,KS
(F501)	Not Used!				E,IU
⚠ (F501)	Fuse, T 3.15 A, 250 V		5508302735	1	B
⚠ F502	Fuse, T 2 A, 250 V		5508302435	1	D,IU,B,E
⚠ (F502)	Fuse, SB 2.5 A, 250 V		5508102530	1	KS
⚠ (F502)	Fuse, SB 3.5 A, 125 V		5508102821	1	A
Q501	KTC114YS, NPN, Silicon		2208622106	1	
R501	Metal Film	330 ohm 1 W J	3029331470	1	

Ref.No.	Description		Part No.	Q'ty	Version
R502/R503	Carbon Film	3.3 ohm 1/5 W J	3069339970	2	
R504	Metal Film	100 ohm 2 W J	3029101570	1	
R505	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R506	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R507	Carbon Film	4.7 kohm 1/5 W J	3069472970	1	
R508	Carbon Film	100 kohm 1/5 W J	3069104970	1	
R509	Metal Film	3.3 ohm 1/2W J	3029335380	1	A(Only)
(R509)	Not Used!				KS,D,IU,B,E
R511	Carbon Film	5.6 kohm 1/5 W J	3069562970	1	
R512	Carbon Fillm	22 kohm 1/5 W J	3069223970	1	
J501	Jumper			1	A,KS
(J501)	Not Used!				D,IU,B,E
J502	Jumper			1	A,KS,D
(J502)	Not Used!				IU,B,E
P1/P2	Pin Solder		4228001410	2	
	Clip Fuse		4255001010	2	
	Terminal Ground		4228001410	2	
	A'ssy P.C. Board Power S/W		054010110123		A,B,E,KS
	A'ssy P.C. Board Power S/W		054010410124		D,IU
8 ⚠	Switch Power		4628055910	1	
9	Jack Phone, Black		4438004520	1	
C505L/R	Mylar	0.047 µF 100 V J	3679473120	2	D,IU
C506	Ceramic Tubular	0.1 µF 50 V Z	3519103935	1	
C507	Capacitor	0.0047 µF 400 VAC M	3548472340	1	
C508	Ceramic Disc	0.1 µF 50 V Z	3579104530	1	
R510	Carbon Film	1 kohm 1/5 W J	3069102970	1	
R511L/R	Carbon Film	4.7 ohm 1/5W J	3069479970	2	
D508	1N4148, Switching		2058322101	1	
CN502	Lead Ass'y, 2P, 350mm		435402353519	1	A
(CN502)	Lead Ass'y, 2P, 350mm		4358850235	1	B
(CN502)	Lead Ass'y, 2P, 350mm		435402353559	1	KS,D,E,IU
CN403	Lead Ass'y, 5P, 300mm		436205303332	1	

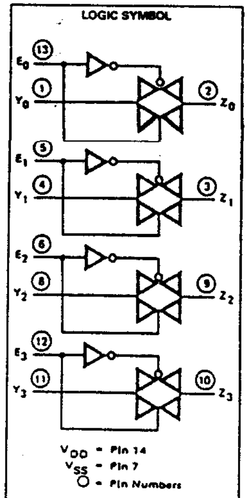
PRODUCT SAFETY NOTICE

Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insuiated from the supply circuit before returning the product to the customer.

IC'S LEAD IDENTIFICATION & INTERNAL DIAGRAM

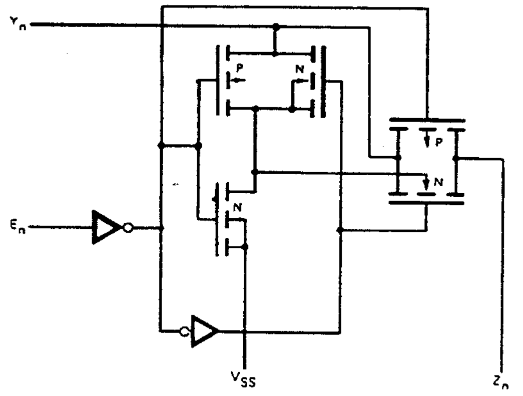
GD4066B: IC401(Quad bilateral switches)

LOGIC SYMBOL

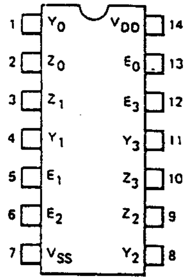

E0
13
Y0
1
2
Z0
E1
5
Y1
4
3
Z1
E2
6
Y2
8
9
Z2
E3
12
Y3
11
10
Z3
VDD = Pin 14
VSS = Pin 7
○ = Pin Numbers

PIN NAMES
E0-E3 Enable Inputs
Y0-Y3 Input/Output Terminals
Z0-Z3 Input/Output Terminals

LOGIC DIAGRAM (1/4 F A 4066B)


Yn
En
P
N
P
N
N
VSS
Zn

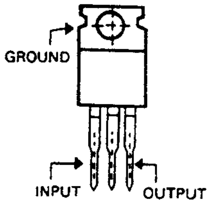
CONNECTION DIAGRAM
DIP (TOP VIEW)


1
Y0
VDD
14
2
Z0
E0
13
3
Z1
E3
12
4
Y1
Y3
11
5
E1
Z3
10
6
E2
Z2
9
7
VSS
Y2
8

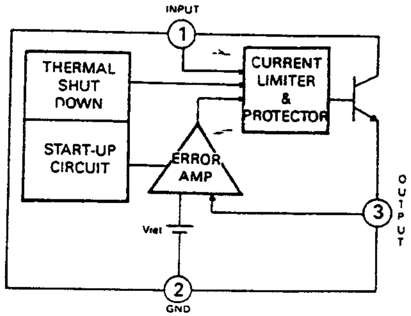
NOTE:
The so package has the same piuouts (counection Diagram) as the Dual in the Package.

KA7806: IC501(Regulator+)

Front View

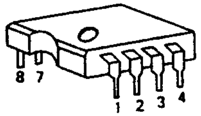

GROUND
INPUT
OUTPUT

Block Diagram


INPUT
1
THERMAL SHUT DOWN
CURRENT LIMITER & PROTECTOR
START-UP CIRCUIT
ERROR AMP
Vref
3
OUTPUT
2
GND

KIA4559P/KIA75559P: IC102, IC104, IC203, IC205 (OP AMP)

Package Outline



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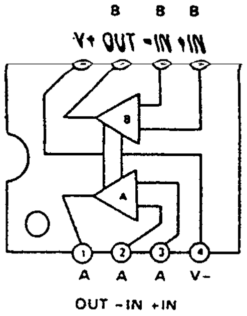
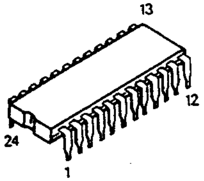

8 8 8
V+ OUT -IN +IN
B
A
1 2 3 4
A A A V-
OUT -IN +IN

LA1266: IC403

Package Outline



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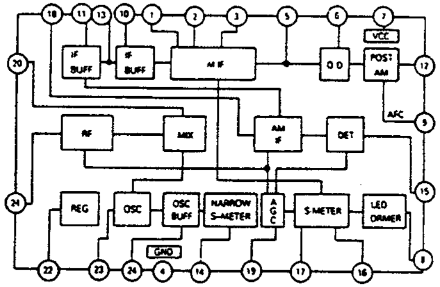
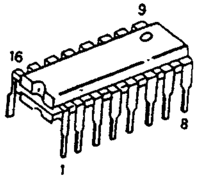

18
11
13
10
1
2
3
5
6
7
VCC
IF BUFF
IF BUFF
AM IF
O D
POST AM
20
12
AFC
9
RF
MIX
AM IF
DET
15
24
REG
OSC
OSC BUFF
NARROW S-METER
AGC
S-METER
LED DRIVER
GND
8
22
23
24
4
14
19
17
16

LM7001: IC404

Package Outline



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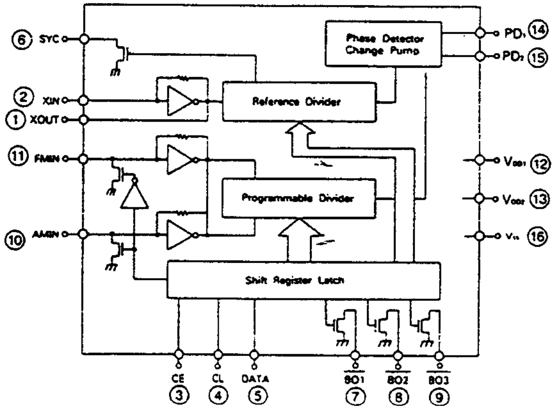
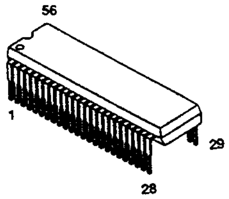

6 SYC
Phase Detector Change Pump
PD1 14
PD2 15
2 XIN
1 XOUT
Reference Divider
11 FMIN
Programmable Divider
VDD1 12
VDD2 13
VSS 16
10 AMIN
Shift Register Latch
CE 3
CL 4
DATA 5
BO1 7
BO2 8
BO3 9

NJM2177L: IC202

Package Outline



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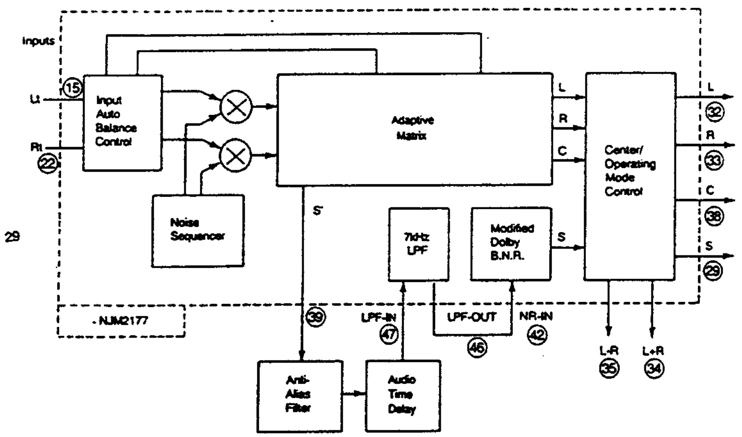
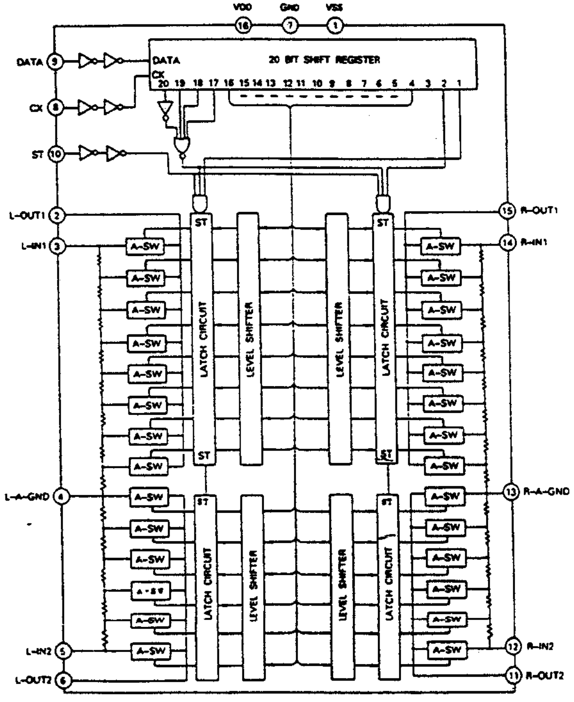
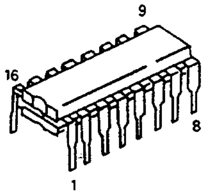

Inputs
Lt
Rt
⑮
㉒
Input Auto Balance Control
Noise Sequencer
Adaptive Matrix
L
R
C
S
S'
Center/ Operating Mode Control
7kHz LPF
Modified Dolby B.N.R.
L
R
C
S
㉜
㉝
㊳
㉙
- NJM2177
㊴
LPF-IN
LPF-OUT
NR-IN
(47)
(46)
(42)
L-R
L+R
㉟
㉞
Anti-Alias Filter
Audio Time Delay

TC9176P: IC109

Block Diagram

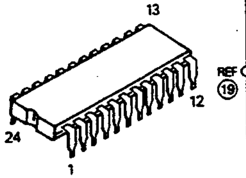

VDD
GND
VSS
⑯
⑦
⑪
DATA ⑨
CK ⑧
ST ⑩
DATA
CK
20 BIT SHIFT REGISTER
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
ST
L-OUT1 ②
L-IN1 ③
L-A-GND ④
L-IN2 ⑤
L-OUT2 ⑥
A-SW
LATCH CIRCUIT
LEVEL SHIFTER
⑮ R-OUT1
⑭ R-IN1
⑬ R-A-GND
⑫ R-IN2
⑪ R-OUT2

Package Outline



NJU9701: IC201

Package Outline



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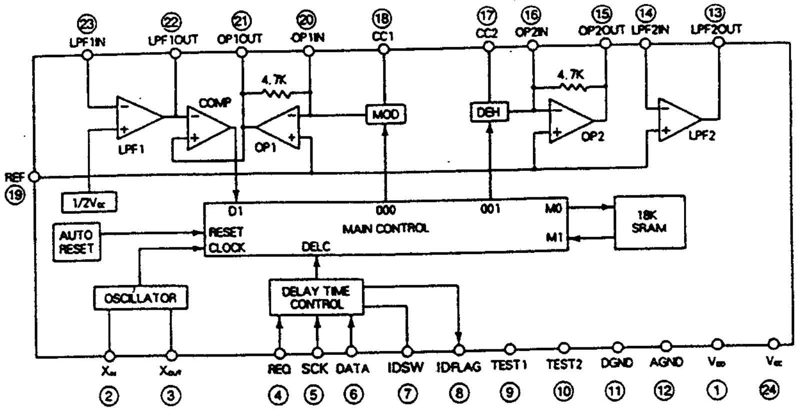
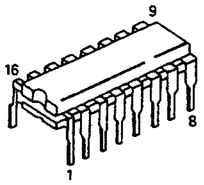
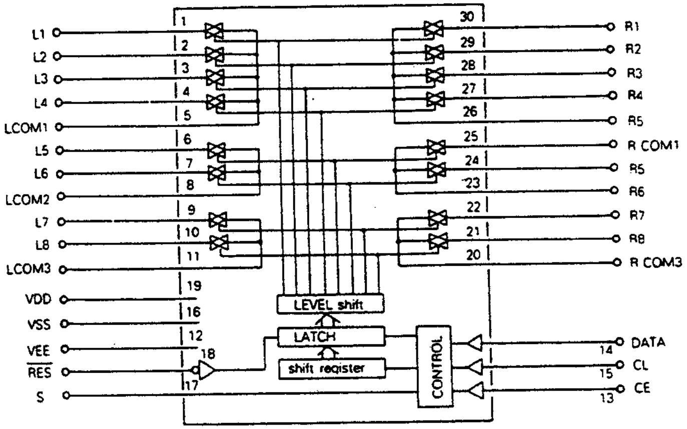

㉓ LPF1IN
㉒ LPF1OUT
㉑ OP1OUT
⑳ OP1IN
⑱ CC1
⑰ CC2
⑯ OP2IN
⑮ OP2OUT
⑭ LPF2IN
⑬ LPF2OUT
4.7K
COMP
LPF1
OP1
MOD
DEH
4.7K
OP2
LPF2
REF ⑲
1/2Vcc
AUTO RESET
D1
000
001
M0
M1
RESET
CLOCK
DELC
MAIN CONTROL
16K SRAM
OSCILLATOR
DELAY TIME CONTROL
Xin ②
Xout ③
REQ ④
SCK ⑤
DATA ⑥
IDSW ⑦
IDFLAG ⑧
TEST1 ⑨
TEST2 ⑩
DGND ⑪
AGND ⑫
VDD ①
Vcc ㉔

LC7821: IC101

Package Outline

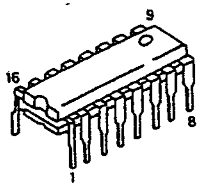


Block Diagram

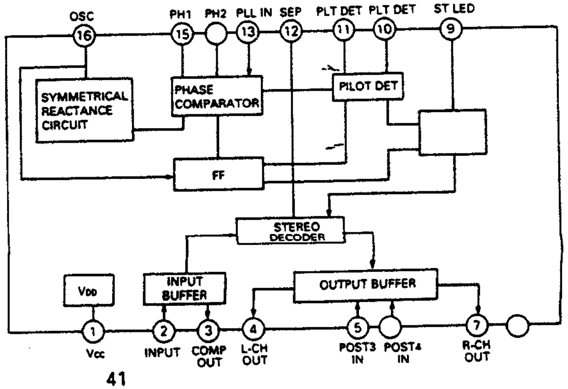

L1
L2
L3
L4
LCOM1
L5
L6
LCOM2
L7
L8
LCOM3
VDD
VSS
VEE
RES
S
1
2
3
4
5
6
7
8
9
10
11
19
16
12
18
17
30
29
28
27
26
25
24
23
22
21
20
R1
R2
R3
R4
R5
R COM1
R5
R6
R7
R8
R COM3
LEVEL shift
LATCH
shift register
CONTROL
14 DATA
15 CL
13 CE

KA2265: IC402

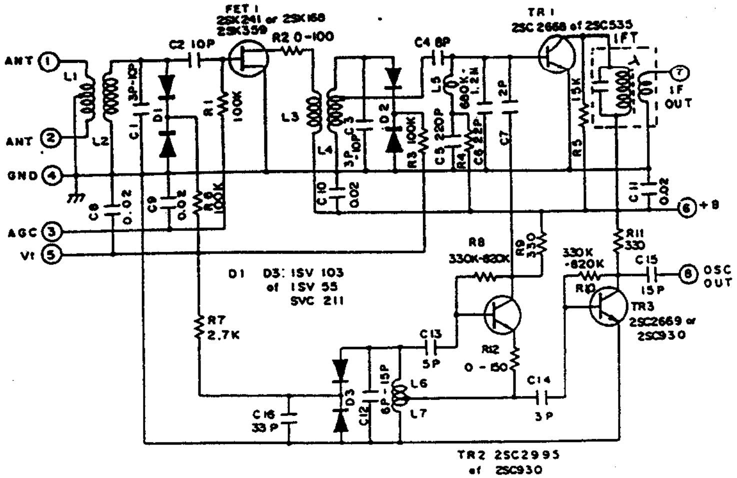
Package Outline



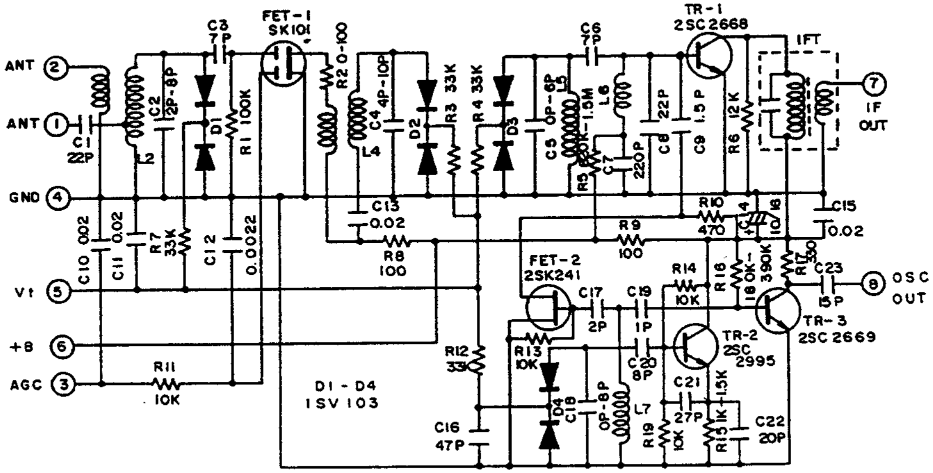
Block Diagram


OSC
⑯
PH1
PH2
PLL IN
SEP
PLT DET
PLT DET
ST LED
⑮
⑬
⑫
⑪
⑩
⑨
SYMMETRICAL REACTANCE CIRCUIT
PHASE COMPARATOR
PILOT DET
FF
STEREO DECODER
VDD
INPUT BUFFER
OUTPUT BUFFER
①
②
③
④
⑤
⑦
Vcc
INPUT
COMP OUT
L-CH OUT
POST3 IN
POST4 IN
R-CH OUT

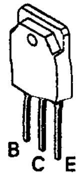
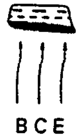
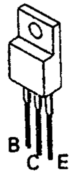
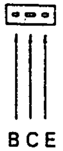
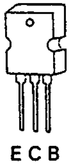
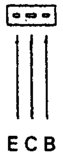
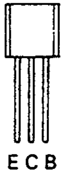
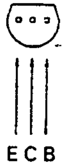
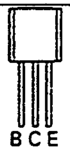
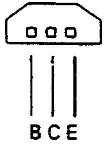
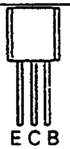
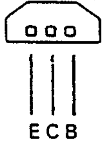
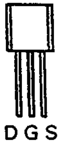
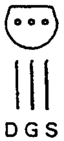
FRONT-END: FE401 (FTH3-505H)


ANT ①
ANT ②
GND ④
AGC ③
Vt ⑤
L1
L2
C1 3P-10P
D1
C8 0.02
C9 0.02
R6 100K
C2 10P
FET 1 2SK241 or 2SK168 2SK359
R2 0-100
R1 100K
L3
L4
C3 3P-10P
D2
R3 100K
C10 0.02
C4 8P
L5
C5 220P
R4 680K-1.2M
C6 22P
C7 2P
TR 1 2SC 2668 or 2SC535
R5 1.5K
IFT
⑦ IF OUT
C11 0.02
⑥ +B
R8 330K-820K
R9 330
R11 330
330K -820K R10
C15 15P
⑧ OSC OUT
TR3 2SC2669 or 2SC930
D1 D3: 1SV 103 or 1SV 55 SVC 211
R7 2.7K
C13 5P
R12 0-150
L6
L7
D3
C12 6P-15P
C14 3P
C16 33P
TR2 2SC2995 or 2SC930

FRONT-END: FE401 (FE407-G60) "D" Version Only


ANT ②
ANT ①
C1 22P
GND ④
Vt ⑤
+B ⑥
AGC ③
R11 10K
C10 .002
C11 .002
R7 33K
C12 0.0022
C2 2P-8P
L2
C3 7P
D1
R1 100K
FET-1 SK101
R2 0-100
C4 4P-10P
L4
D2
R3 33K
R4 33K
D3
C13 0.02
R8 100
C6 10P
C5 0P-6P
R5 10K-1.5M
L6
C7 220P
C8 22P
C9 1.5P
TR-1 2SC2668
R6 12K
IFT
⑦ IF OUT
C15 0.02
R10 470
R9 100
C14 10/18
FET-2 2SK241
R14 10K
R16 180K-390K
R17 330
C17 2P
C19 1P
C23 15P
⑧ OSC OUT
TR-3 2SC 2669
TR-2 2SC 2995
R12 33K
R13 10K
C20 8P
C21 27P
C22 20P
D1 - D4 1SV 103
D4
C18 0P-6P
L7
R19 10K
R15 1.5K
C16 47P

TRANSISTORS LEAD IDENTIFICATION

Transistor	Front View	Bottom View
KTB688/2SB688 KTD718/2SD718		
KTB1367/2SB1367 KTD2059/2SD2059		
2SC4137		
KTA1015/KTA1266 KTC1923/KTC3194 KTC1815/KTC3198 KTC2240/KTC3200 KTD1302		
KTC114YS KTA114YS		
KTA949/KTA1024 KTC2229/KTC3206		
2SK117		

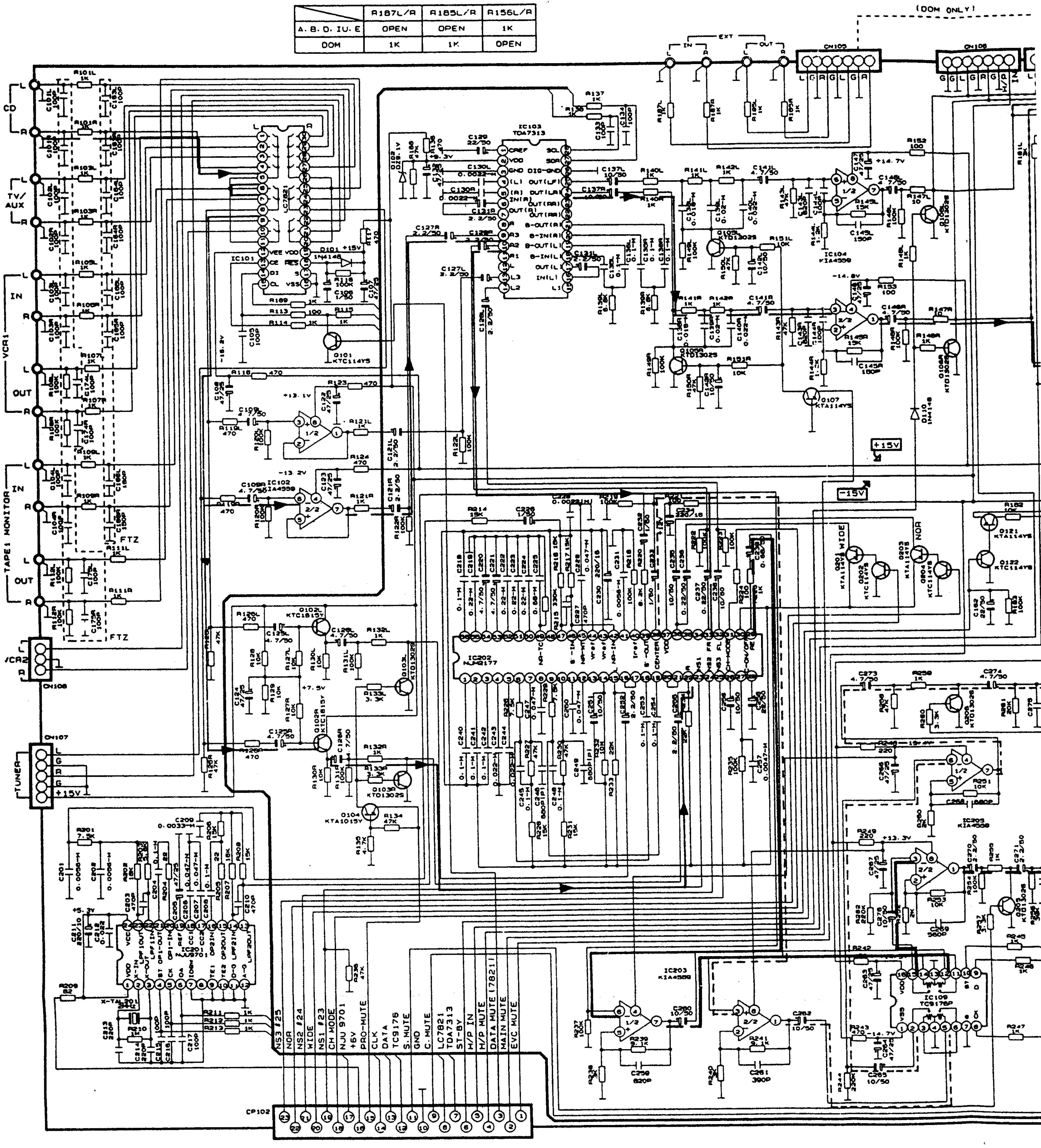
TERMINAL NAME

B→BASE
C→COLLECTOR
E→EMITTER

S→SOURCE
G→GATE
D→DRAIN

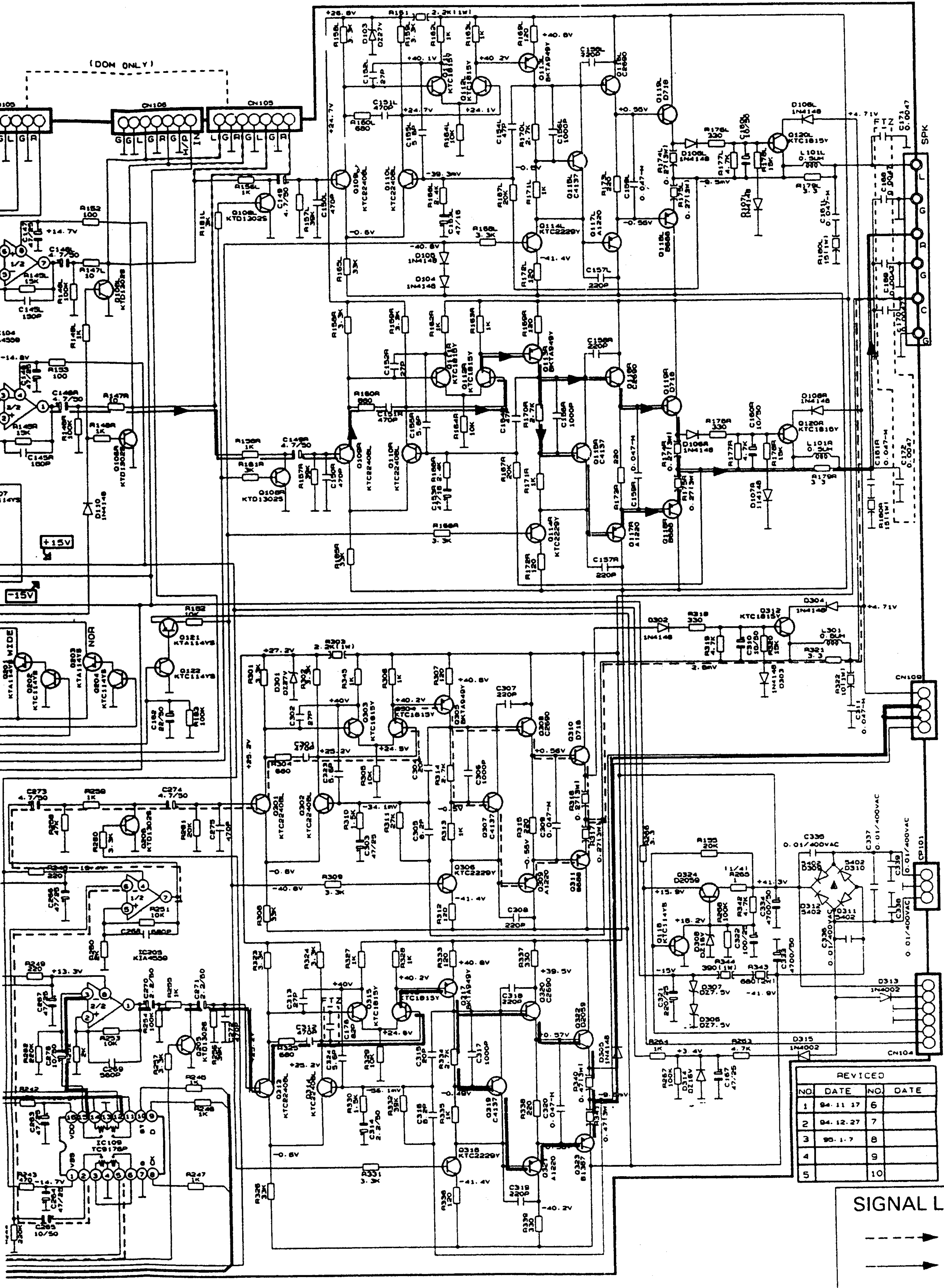
SCHEMATIC DIAGRAM

	R187L/R	R185L/R	R156L/R
A. B. D. IU. E	OPEN	OPEN	1K
DOM	1K	1K	OPEN


(DOM ONLY)
EXT
IN
OUT
CN105
CN106
CD
TV/AUX
VCR1
IN
OUT
TAPE1 MONITOR
FTZ
VCR2
CN108
CN107
TUNER
+15V
-15V
IC101 LC7821
IC103 TDA7313
IC102 KIA4558
IC104 KIA4558
IC202 NJM2177
IC201 NJU9701
X-TAL201
IC203 KIA4558
IC205 KIA4558
IC109 TC9176P
Q101 KTC114YS
Q102L KTC1815Y
Q102R KTC1815Y
Q103L KTD1302S
Q103R KTD1302S
Q104 KTA1015Y
Q105L KTD1302S
Q105R KTD1302S
Q106L KTD1302S
Q106R KTD1302S
Q107 KTA114YS
Q121 KTA114YS
Q122 KTC114YS
Q201 KTA114YS
Q202 KTC114YS
Q203 KTA114YS
Q204 KTC114YS
WIDE
NOR
D101 1N4148
D110 1N4148
CP102
NS3 #25
NS2 #24
WIDE
NS1 #23
CH MODE
NJU 9701
+6V
PRO-MUTE
CLK
DATA
TC9176
S.MUTE
GND
C.MUTE
LC7821
TDA7313
ST-BY
H/P IN
H/P MUTE
DATA MUTE(7821)
MAIN MUTE
EVC MUTE

MATIC DIAGRAM I

Model No. : RV-4050R


(DOM ONLY)
CN106
CN105
G G L G R G P IN
L G R G L G R
H/P
SPK
FTZ
CN109
CN104
CP101
+15V
-15V
WIDE
NOR
IC109 TC9178P
IC205 KIA4558
1/2
2/2
+26.8V
+40.8V
+40.1V
+40.2V
+24.7V
+24.1V
-39.3mV
-40.8V
-41.4V
+0.55V
-0.56V
+4.71V
-8.5mV
+27.2V
+25.2V
+24.8V
+0.56V
-34.1mV
+13.3V
-14.7V
+14.7V
-14.8V
-15V
+15.8V
+16.2V
+41.3V
-41.8V
+3.4V
Q101L KTC2240BL
Q110L KTC2240BL
Q111L KTC1815Y
Q112L KTC1815Y
Q113L BKTA949Y
Q114L KTC2229Y
Q115L C4137
Q116L C2690
Q117L A1220
Q118L B688
Q119L D718
Q120L KTC1815Y
Q108L KTD1302S
Q121 KTA1114YS
Q122 KTC1114YS
Q201 KTC2240BL
Q202 KTC2240BL
Q303 KTC1815Y
Q304 KTC1815Y
Q305 BKTA949Y
Q306 KTC2229Y
Q307 C4137
Q308 C2690
Q309 A1220
Q310 D718
Q311 B688
Q312 KTC1815Y
Q313 KTC2240BL
Q314 KTC2240BL
Q315 KTC1815Y
Q316 KTC1815Y
Q317 BKTA949Y
Q318 KTC2229Y
Q319 C4137
Q320 C2690
Q321 A1220
Q322 D718
Q323 B1369
Q324 D2059
D103 DZ27V
D104 1N4148
D106L 1N4148
D107L 1N4148
D108L 1N4148
D109 1N4148
D110 1N4148
D302 1N4148
D303 1N4148
D304 1N4148
D305 1N4148
D306 DZ7.5V
D307 DZ7.5V
D308 DZ18V
D310 5402
D311 5402
D312 5402
D313 1N4002
D314 DZ16V
D315 1N4002
L101L 0.5UH
L101R 0.5UH
L301 0.5UH
C336 0.01/400VAC
C337 0.01/400VAC
C338 0.01/400VAC
C339 0.01/400VAC
C333 4700/50
C334 4700/50
R151 2.2K(1W)
R303 2.2K(1W)
R344 390(1W)
R343 680(1W)
R265 1(1/4)

NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1.000 M=1.000.000)
2. Capacitor values are indicated in microfarads unless otherwise specified. (p=micro-microfarads)

CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety. use only the one described in the parts list
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

REVICED			
NO.	DATE	NO.	DATE
1	94.11.17	6	
2	94.12.27	7	
3	95.1.7	8	
4		9	
5		10	

SIGNAL LINE

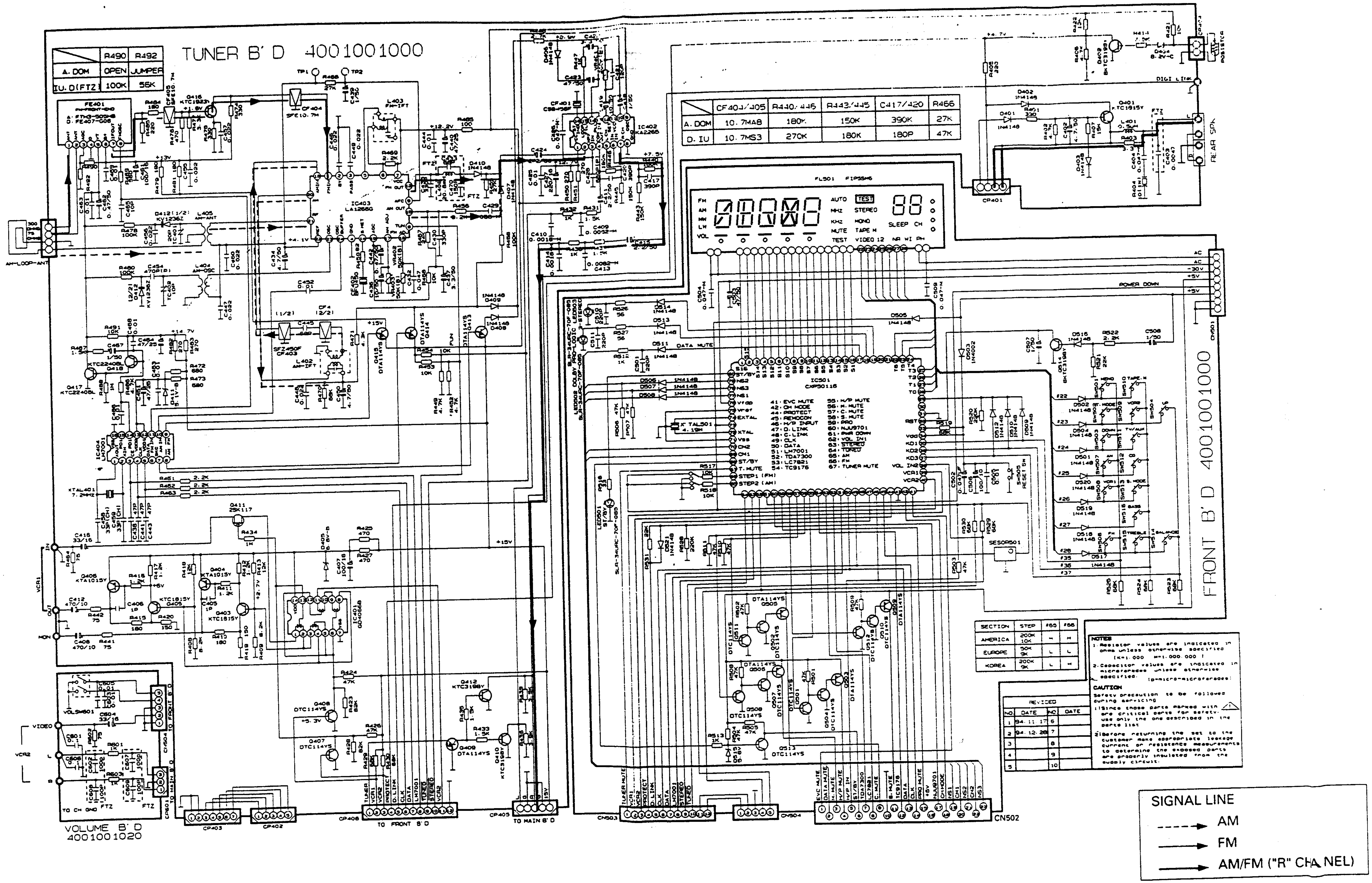
- - - - ► CENTER

———► FRONT ("R" CHANEL)

━━━► REAR

SCHEMATIC DIAGRAM II

Model No. : RV-4050R


TUNER B' D 4001001000
FRONT B' D 4001001000
VOLUME B' D 4001001020
FE401
IC403 LA1266G
IC402 KA2265
IC404 LM7001
IC401
IC501 CXP50116
FL501 FIP5SM6
41: EVC MUTE
42: CH MODE
44: PROTECT
45: REMOCON
46: H/P INPUT
47: D.LINK
48: C.LINK
49: CLK
50: DATA
51: LM7001
52: TDA7300
53: LC7821
54: TC9176
55: H/P MUTE
56: M.MUTE
57: C.MUTE
58: S.MUTE
59: PRO
60: NJU9701
61: PWR DOWN
62: VOL IN1
63: STEREO
64: TONED
65: AM
66: FM
67: TUNER MUTE
AM-LOOP-ANT
VCR1
VCR2
VIDEO
REAR SP
DIGI LINK
POWER DOWN
TO FRONT B'D
TO MAIN B'D
CP401
CP402
CP403
CP405
CP406
CN501
CN502
CN503
CN504
SIGNAL LINE
AM
FM
AM/FM ("R" CHANEL)

	R490	R492
A. DOM	OPEN	JUMPER
IU. D(FTZ)	100K	56K

	CF404/405	R440/446	R443/445	C417/420	R466
A. DOM	10.7MA8	180K	150K	390K	27K
D. IU	10.7MS3	270K	180K	180P	47K

SECTION	STEP	#65	#66
AMERICA	200K 10K	H	H
EUROPE	50K 9K	L	L
KOREA	200K 9K	L	H

REVICED			
NO.	DATE	NO.	DATE
1	94. 11. 17	6	
2	94. 12. 28	7	
3		8	
4		9	
5		10	

NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1.000 M=1.000.000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

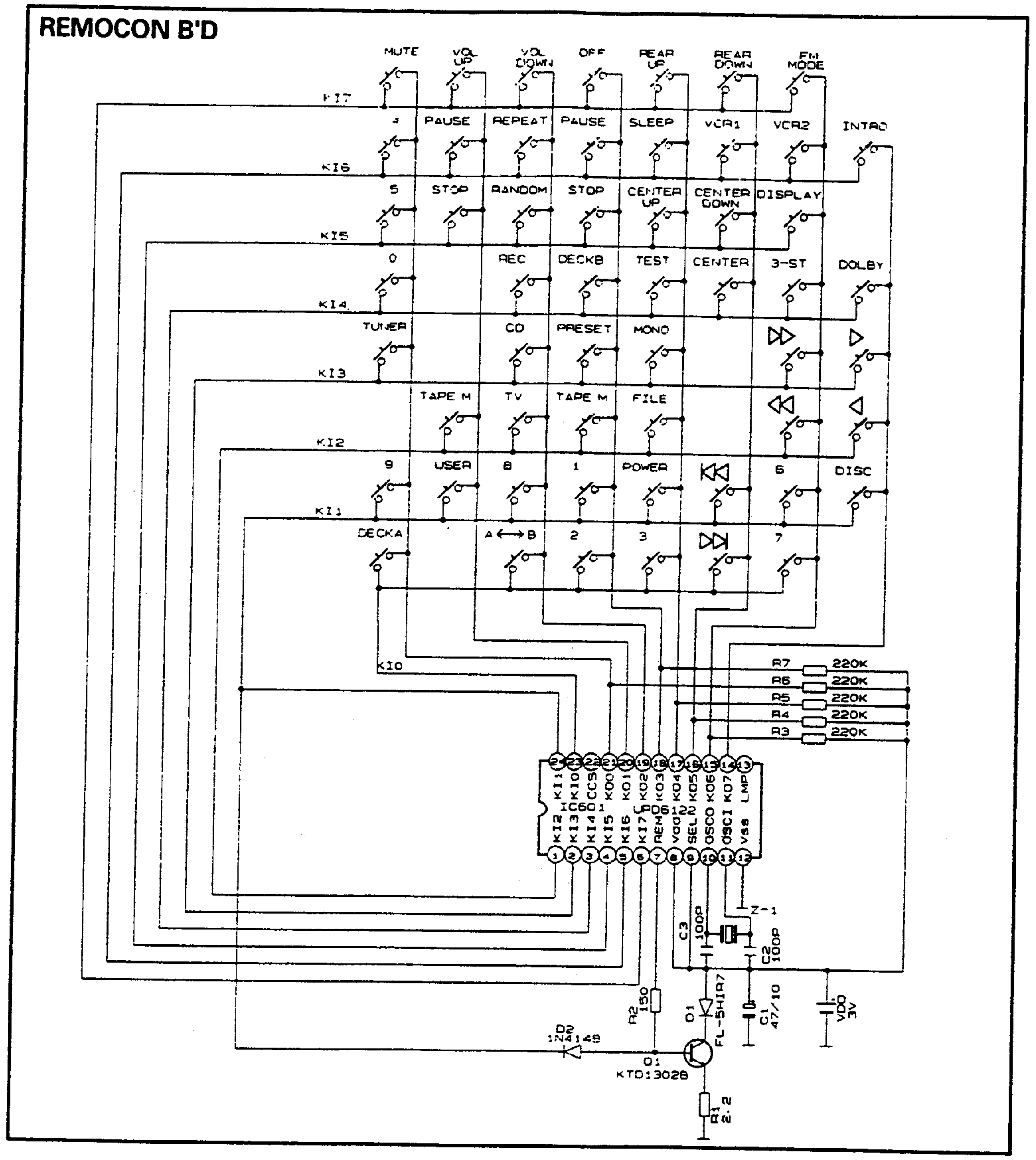
CAUTION

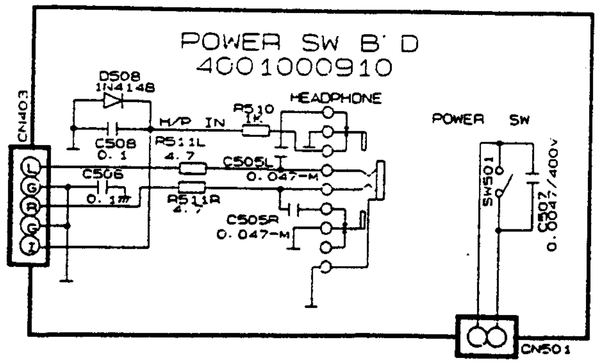
Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety. use only the one described in the parts list
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

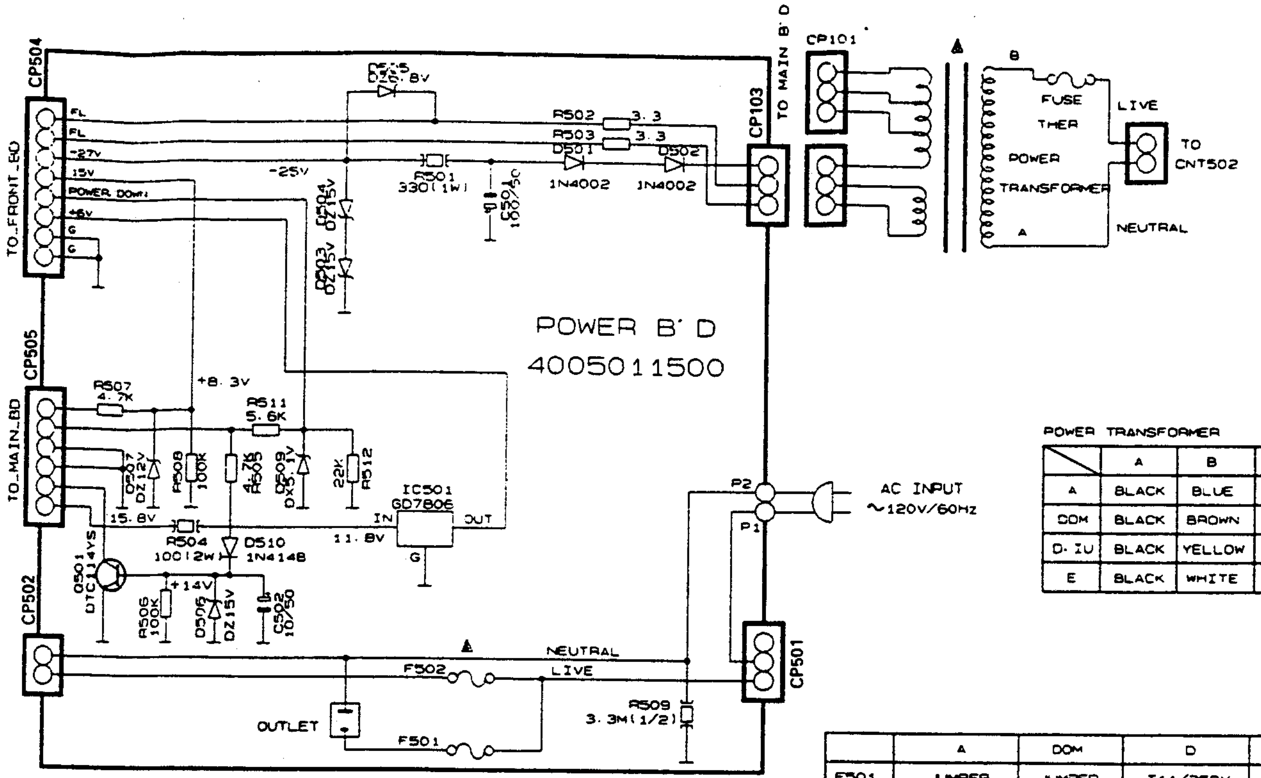
SCHEMATIC DIAGRAM III

Model No. : RV-4050R


REMOCON B'D
MUTE
VOL UP
VOL DOWN
OFF
REAR UP
REAR DOWN
FM MODE
KI7
4
PAUSE
REPEAT
PAUSE
SLEEP
VCR1
VCR2
INTRO
KI6
5
STOP
RANDOM
STOP
CENTER UP
CENTER DOWN
DISPLAY
KI5
0
REC
DECKB
TEST
CENTER
3-ST
DOLBY
KI4
TUNER
CD
PRESET
MONO
KI3
TAPE M
TV
TAPE M
FILE
KI2
9
USER
8
1
POWER
6
DISC
KI1
DECKA
A↔B
2
3
7
KI0
R7 220K
R6 220K
R5 220K
R4 220K
R3 220K
IC601
UPD6124
C3 100P
C2 100P
Z-1
R2 150
D1 FL-5H(R7
C1 47/10
VDD 3V
D2 1N4148
Q1 KTD1302B
R1 2.2


POWER SW B' D
4001000910
D508 1N4148
CN403
C508 0.1
R511L 4.7
C506 0.1
R511R 4.7
H/P IN
R510 1K
HEADPHONE
C505L 0.047-M
C505R 0.047-M
POWER SW
SW501
C507 0.0047/400V
CN501

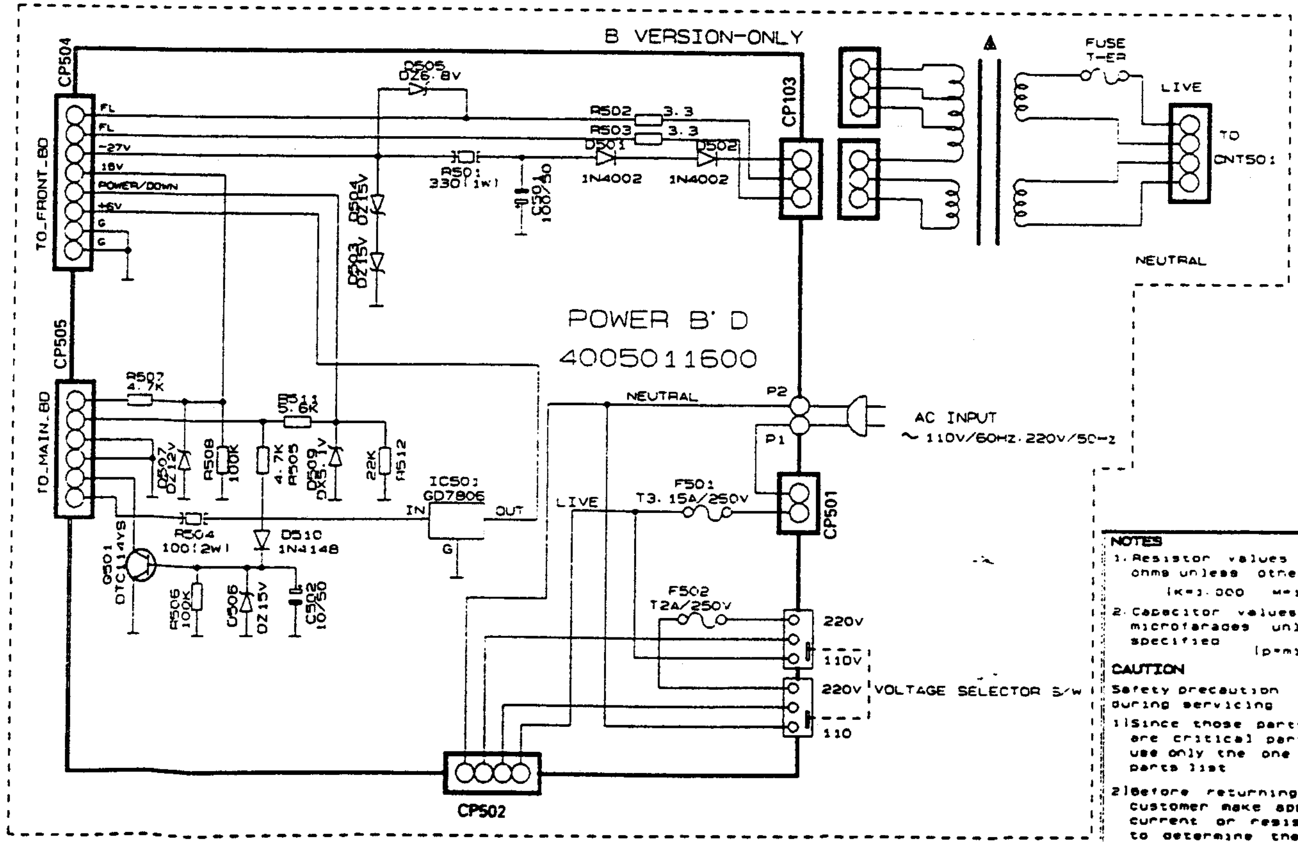
	C506	C505L	C505R
IU. D(FTZ)	OPEN	0.047-M	0.047-M
A. DOM. B. E	0.1(C)	OPEN	OPEN


CP504
TO_FRONT_BD
FL
FL
-27V
15V
POWER DOWN
+6V
G
G
R505 DZ6.8V
-25V
R502 3.3
R503 3.3
D501
D502
F501 330(1W)
1N4002
1N4002
C501 1000/50
D504 DZ15V
D503 DZ15V
CP103
TO MAIN B'D
CP101
FUSE THER
POWER TRANSFORMER
LIVE
TO CNT502
NEUTRAL
POWER B' D
4005011500
CP505
TO_MAIN_BD
R507 4.7K
+8.3V
R511 5.6K
D507 DZ12V
R508 100K
R505 4.7K
D509 DZ5.1V
22K R512
IC501 GD7806
IN
OUT
G
15.8V
11.8V
R504 10(2W)
D510 1N4148
+14V
Q501 DTC114YS
R506 100K
D505 DZ15V
C502 10/50
CP502
AC INPUT ~120V/60Hz
P2
P1
NEUTRAL
LIVE
F502
CP501
R509 3.3M(1/2)
OUTLET
F501

POWER TRANSFORMER

	A	B	VOLTAGE
A	BLACK	BLUE	120V/60Hz
DOM	BLACK	BROWN	220V/60Hz
D. IU	BLACK	YELLOW	230V/50Hz
E	BLACK	WHITE	240V/50Hz

	A	DOM	D	IU	E
F501	JUMPER	JUMPER	T1A/250V	OPEN	OPEN
F502	SB3.5A	SB2.5A	T2A/250V	T2A/250V	T2A/250V
R509	3.3M(1/2W)	OPEN			


B VERSION-ONLY
CP504
TO_FRONT_BD
FL
FL
-27V
15V
POWER/DOWN
+6V
G
G
R505 DZ6.8V
R502 3.3
R503 3.3
D501
D502
R501 330(1W)
1N4002
1N4002
C501 1000/50
D504 DZ15V
D503 DZ15V
CP103
FUSE T-ER
LIVE
TO CNT501
NEUTRAL
POWER B' D
4005011600
CP505
TO_MAIN_BD
R507 4.7K
R511 5.6K
D507 DZ12V
R508 100K
4.7K R505
D509 DZ5.1V
22K R512
IC501 GD7806
IN
OUT
G
R504 100(2W)
D510 1N4148
Q501 DTC114YS
R506 100K
D505 DZ15V
C502 10/50
NEUTRAL
P2
P1
AC INPUT ~110V/60Hz. 220V/50Hz
LIVE
F501 T3.15A/250V
CP501
F502 T2A/250V
220V
110V
220V
VOLTAGE SELECTOR S/W
110
CP502

NOTES

1. Resistor values are indicated in ohms unless otherwise specified
   (K=1.000 M=1.000.000)
2. Capacitor values are indicated in microfarades unless otherwise specified
   (p=micro-microfarades)

CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list

2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.